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ARTES SCIENTIA VERITAS



CHICAGO, ILL.

N. B. Ogden

FIRST MAYOR OF CHICAGO

ELECTED MAY 2ND 1837

MAYOR'S ANNUAL MESSAGE
AND THE
FIFTEENTH ANNUAL REPORT
OF THE
DEPARTMENT OF
PUBLIC WORKS

TO THE
CITY COUNCIL OF THE CITY OF CHICAGO



FOR THE
Fiscal Year Ending December 31,

1890.

CHICAGO:
CAMERON, AMBERG & Co., PRINTERS.
1891.

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Francis P. Oregan
Mayor of Chicago

Francis P. Oregan
MAYOR OF CHICAGO
1887-1891

MESSAGE
OF
MAYOR CREGIER
1891

MESSAGE OF MAYOR CREGIER.

CITY OF CHICAGO, MAYOR'S OFFICE, }
April 27, 1891. }

To the Honorable the City Council:

GENTLEMEN :—Just one year ago I had the honor to submit to this body my first official annual communication, embracing a general summary of municipal transactions for the preceding year. Another year has been added to the history of our city, a year marked by peace and good order and abundant prosperity, not only within our own municipal borders, but throughout our State and our common country.

For the blessings thus vouchsafed we, as a community, should render grateful thanks unto Him who is the author of every good and perfect gift.

Again it is my privilege, in conformity to the charter requirements to submit a succinct statement of the administration of the city's affairs for the past twelve months. For a more detailed statement I invite your attention to the interesting and instructive reports of the several departments and bureaus.

ANNEXATION.

During the past year our city's territorial limits have been extended on the south by the acquisition of portions of the villages of Gano, Calumet, West Roseland, Washington Heights and Fernwood (annexed the present week), embracing in the

aggregate an area of $10\frac{1}{16}$ square miles, bringing within the present municipal boundary $181\frac{1}{2}$ square miles, equal to 116,000 acres.

From the incorporation of the original town of Chicago, there have been ten extensions by annexation ; nine of these were added during the past two years, embracing 140 square miles. The city's limits extend from north to south on the line of Halsted street, a distance of $21\frac{1}{2}$ miles ; from east to west on the north line of Eighty-seventh street the city is $10\frac{1}{2}$ miles wide, and on the south line of the same street the distance between the limits is $4\frac{1}{2}$ miles. This indeed constitutes a vast area within one city. Ordinarily men and women who have resided any considerable length of time in a city, become more or less familiar with its various localities. How many of our citizens, old or young, have ever traversed over the great city of Chicago and are sufficiently familiar with different sections to point the way or even find their way throughout its length and breadth ?

The experience of the older cities of the country demonstrates that contracted boundary lines, for many reasons, tend to retard progress.

Restricted limits do not now and will not for many years to come, apply to Chicago. There is abundant room for all and eligible locations for all great and important enterprises within the limits of the great metropolis, where commercial and manufacturing industries will enjoy the advantages of the best labor ; an ample water supply, an adequate drainage, improved streets ; police and fire protection and other indispensable public conveniences. We have reached a limit when it will be well to defer the annexation of any more territory until ways and means can be discovered for extending necessary public improvements and building up some of the waste places of the extensive area now under municipal control.

The limited resources of the city is a subject that has been frequently and fully discussed, and is too well understood by all to justify any reference here ; I may say, however, in this

connection, that the great extension and rapid increase in population during the past two years, have rendered it more difficult than ever before to fully meet the legitimate requirements of the people ; add to this what is necessary during the next two years to prepare our city for the Columbian Exposition, and it would seem that the financial methods of twenty years ago and our present restricted resources need the aid of wise and careful legislation in order to accomplish not only the object in view, but also to afford opportunity to the present generation of tax-payers to enjoy the fruits of their enterprise and expenditures.

FINANCIAL.

The bonded debt of the city amounts to \$13,545,400.00, bearing interest from 3½ to 7 per cent. ; \$983,900.00 of this indebtedness was incurred by annexation. The total annual interest paid on the present bonded debt for the past year was \$825,350.40.

The bonded debt will be increased during the next two years by the issuance of 4 per cent. bonds to the amount of five millions of dollars, as authorized by an Act of the State Legislature and an ordinance of this Council, making the city debt a little more than \$18,500,000.00, a much smaller debt than any other city of similar size and pretensions in the country.

During the past year it was found that a large amount of money was held by the city, on account of rebates due on special assessments, much of it running back several years. Special efforts were made to notify citizens to whom rebates were due; the result was, the city refunded nearly \$796,000.00 — \$300,000.00 more than any previous year for a like purpose.

In was the custom in former years, during the first quarter of the fiscal year, pending the consideration of the appropriation bill, to pay only 75 per cent. on account of salaries. For the past two years all salaries during a like period, and other

demands, have been met in full, thus reducing proportionately what was in fact a fictitious balance in the general fund, the result being a showing of the true surplus.

| | |
|--|----------------|
| The balance in the city treasury April 1, 1891, was..... | \$1,377,571 08 |
| In the hands of and due from the several Town Collectors.... | 1,064,165 07 |
| Total cash resources..... | \$2,441,736 10 |

Considerable comment from partisan sources has been made on the alleged increase of taxes for the year 1890. Such assertions were evidently intended to reflect upon the city administration, and without explanation are misleading. There was in fact little or no increase in taxes for city purposes, because the valuation was but little more than the preceding year; hence, the increase in taxes was a matter over which the city administration had no control and was for purposes outside strictly city account. The increase of taxes for the year referred to was due to an increase in the School Appropriation from two and one-half million dollars in 1889 to four and one-quarter millions in 1890, being one and three-quarter millions and the further addition in the same year of one million for new drainage.

Negotiations during the year with the gas companies resulted in securing for the city the payment annually of the sum of \$150,000.00 into the city treasury, which is equivalent to a reduction from \$20 to less than \$15 per lamp.

DEPARTMENT OF PUBLIC WORKS.

The Department of Public Works has experienced an unusually active season. One hundred and eight miles of new pavement has been laid, which, with the one hundred and sixteen miles paved during the previous season, represents 33 per cent. of the improved streets of the entire city. In addition to the new pavement laid, nearly a quarter million square yards have been relaid. This is the greatest quantity of work of this class ever performed in any two years in the history of the city.

Four hundred and thirty-three miles of sidewalks were laid during the year as against one hundred and ninety-one miles laid the previous year ; 7,137 miles of streets were cleaned as against 6,800 miles in 1889.

One hundred and thirty-three miles of water pipe have been added to the system, at a cost of over one and one-quarter million dollars, against eighty-nine miles the previous year. This pipe extension includes a number of large mains in different parts of the city, notably in the districts of Hyde Park, town of Lake and Lake View, where the water supply had been deficient, but is now ample and satisfactory for all demands of domestic, manufacturing and fire purposes.

There are now 1,205 miles of water pipe in the city—12,000 fire hydrants and a number of street cisterns in connection with water mains for fire service.

The records show 154,000 water service connections with buildings, exclusive of those of annexed districts, of which there is no record.

The total cost of water works of the city at close of the year was nearly \$17,000,000. The total revenue amounts to over 25,000,000—showing a surplus of receipts over expenditures of over \$8,000,000. The revenue on account of water during the past year was nearly \$2,267,900.

The work on the four-mile tunnel is progressing slowly. The structure will probably be completed to the two and one-half mile crib by July 1st of the present year. An arrangement has been effected with the contractor, to utilize this section of the tunnel to supply water to the pumping-works at Fourteenth street, where the machinery is now in course of erection.

Some changes have been made in the original plan of the Fourteenth street works (without detriment to their efficiency) by which a saving will accrue to the city of about \$150,000.

The changes referred to obviate the use of the four pieces of ground purchased by a former administration—three fronting on Michigan avenue and one on Indiana avenue and Fourteenth street.

The cost of the Michigan avenue property was about \$40,000. These lots are of no service to the city. I recommend therefore that they be sold and the proceeds placed to the credit of the water fund, and that the lot occupied by the electric plant be transferred to that department and value of same be also placed to credit of water fund.

The extension of an additional mile east of the new lake tunnel for the supply of the Lake View pumping works, recommended in my last communication, has been contracted for. Much of the way is through solid rock, making the progress tedious and expensive. It is hoped, however, that the time for the completion of this work will not extend greatly beyond the date originally fixed.

The pumping capacity of the Sixty-eighth street works will be increased by the addition of new machinery equal to 24,000,000 gallons per day. This machinery is provided by the Columbian Exposition Company to supply the Exposition grounds with water under the control and supervision of the city.

Upon the termination of the Exposition the plant will become a permanent part of the city's water supply, as provided by an ordinance and contract, authorized and approved by this Council.

I beg to call the attention of the Council to the fact that there are a number of corporations in our city who use an enormous quantity of water during the year. Under the ordinances the authorities are empowered to make special rates, and in some cases this has been done. Equity would seem to warrant that a consumer of fifteen or more million gallons per month, is entitled to a discount from the regular rates charged for a consumption of less than 2,000,000 per month. I am of the opinion that the charge for water, exceeding a certain minimum quantity, should be scaled in proportion to the quantity used.

I therefore recommend that this subject be referred to a special committee of this Council for an equalization of the water rates.

BRIDGES AND VIADUCTS.

Bridges and viaducts have been constructed and erected as follows : North Branch of river at Western avenue ; Calumet river at Ninety-fifth street ; South Branch at Canal street. This latter structure was erected to meet the necessities of the business men of the vicinity, who furnished most of the funds to pay cost of bridge. The old bridge formerly at Madison street has been removed and put in use over the river at Washington street, which in connection with the new viaduct at that point, opens up an additional thoroughfare between the South and West Divisions of the city. The new double steam bridge at Madison street is well under way.

A new type of bridge, termed a combined lift and folding bridge, has been erected and tested over the Ogden canal at Weed street. This structure possesses the merit of giving an unobstructed channel, which will tend to lessen much inconvenience and annoyance in river traffic.

An arrangement has been entered into for operating a number of the river bridges by electric power, which it is believed will result, in a large measure of economy to the city.

Rush street bridge is now equipped with this new system and will be thoroughly tested before applying it to other bridges.

The subject of substituting sub-ways instead of comparatively expensive viaducts at railway crossings, wherever convenient and practicable, is a feature to which I invite your careful consideration, especially in connection with the elevation of steam tracks as proposed by the Lake Shore and Rock Island Railways. Most of the railways entering the city have fairly complied with the "High Speed Ordinance," but even with this precaution, it is believed that a high rate of speed of railway trains on the surface through the principal portions of our city, is incompatible with the safety of human life.

SEWERS.

Near y seventy-two miles of sewers have been added to the system during the year—making the total in the city 785 miles—300 miles of sewers and 12,000 catch-basins have been cleaned ; 6,000 of latter were raised to grade, and forty-seven miles of house drains have been laid.

An area lying between Sixtieth and Ninety-fifth streets and Vincennes avenue and the Lake, comprising about 9,300 acres, is too low to drain by gravity, therefore the storm water and sewage must be taken care of by machinery and other special means, which are now under consideration.

HEALTH DEPARTMENT.

The Health Department of a city like Chicago finds ample scope for the exercise of ability, experience, diligence and official faithfulness in the discharge of the important and delicate duties incidental to that branch of municipal service.

The report of the Commissioner reveals much of interest to officials and citizens generally.

The past year has been marked by extraordinary conditions. Within a period of four months, it is reported that over 100,000 people in our city suffered from influenza.

The mortality among many of our old and prominent citizens has been unusually large. The year closed with a death rate of 18.22 as against 17.49 for the previous year. This slight increase is doubtless due to maladies that had become more or less epidemic in our midst. The total number of deaths reported for the year reached 21,856, nearly one-half being under five years of age.

About 20,000 persons were vaccinated under the supervision of the Department of Health—all persons interested showing a willing disposition to co-operate with the authorities in guarding against a dreaded disease and it is gratifying to

report that not a single known case of small-pox has occurred in the city during the year. The hospital set apart for the treatment of such cases remains without a patient.

One of the pressing needs of our city is a suitable and well equipped hospital under the control of the Department of Health for the care and treatment of diphtheria, scarlet fever, and other dangerous contagious diseases. It will be conceded, I think, that the necessities of our city and the welfare of the community at large, would be greatly subserved by the establishment of a public institution of the kind and of others of similar character.

The shipping to and receiving in this city of diseased cattle, ostensibly for rendering purposes, whether under the authority of State law or city ordinance, is a practice that cannot be too soon thoroughly stamped out. I referred to this subject in my last communication. The Health Department has exercised all the power and authority with which it is vested, to prevent our citizens being subjected to the possibility of having imposed upon them a staple food taken from cattle afflicted with a dangerous and disgusting disease. Professor Paquin, of the Missouri University, in speaking upon this subject, says: "That 'Actinomycosis' or lumpy jaw, is a specific parasite and therefore a transmissible affection—that the disease is identical in man and beast—that being unquestionably transmissible, it interests the public to know what disposition should be made of stock so affected. In the first place the diseased stock should be destroyed and burned on the farm by the owner as soon as discovered." If not burned as recommended by Prof. Paquin, then quarantine the diseased cattle in transit. Whatever may be done I trust that this Council will secure such legislation during the present session of the General Assembly as will effectually put an end to such outrageous traffic and thereby protect the lives and health of our citizens. The Health Commissioner reports several cases in our city traceable to diseased meat.

The scavenger service of the city has, in the main, been performed during the year as efficiently as can be expected, with the poor facilities at hand for garbage disposal and the limited means at command for carrying on the work. There is, however, room for improvement in this regard; much better results would be secured if our citizens would co-operate with the health officers by a fair observance of the ordinances. The fact is, the entire system in vogue for gathering and disposing of garbage needs a radical change.

Several plans for a permanent solution of this important matter have been carefully considered and discussed during the past two years, one or more of which, if they could be adopted, would meet the exigency.

ABATEMENT OF SMOKE.

The efforts in the suppression of smoke during the year have been quite satisfactory. It is proper to say in this connection that our citizens, as a rule, cheerfully conformed to all the requirements of the inspectors, and although the nuisance of smoke has been greatly improved during the past two years, it is doubtful if it can be wholly abated, so long as bituminous coal is used.

FIRE DEPARTMENT.

The fire department continues its usual efficiency. This arm of the service consists of 914 men in all capacities; 209 fire apparatuses; eighty-nine stations; 387 horses; 115,000 feet or nearly twenty-two miles of hose. During the year the department responded to 4,639 alarms, of which 3,459 were fires. One hundred and four men were injured while in the discharge of duty, but not a life was sacrificed, during the year.

The new fire-boat "Yosemite" was completed and put in service December 19th last, and has a capacity to deliver twenty-four one and one-fourth-inch streams simultaneously. This

fire-boat has thrown a single four-inch stream a distance of 420 feet. The power and utility of this boat will prove an important addition to the department.

ELECTRIC LIGHTS.

The city's electric light system has been extended during the year by erecting and putting in operation an additional plant on the pumping works grounds at Fourteenth street and Indiana avenue.

At this station there is a capacity for 850 street lights, but at present only 260 lamps are in operation in this district. The number of public electric lights last reported has been doubled during the past year, making about 1,000 in all. The present four plants, with a moderate increase of steam power, have a combined capacity of 3,000 lights. These plants should be utilized by the establishment of additional lamps as rapidly as practicable, and the eight districts throughout the city should be supplied with light stations as rapidly as the funds for the purpose will admit.

This modern and superior system of illuminating the public highways affords additional security to travel, and in some measure enhances the attractiveness of our streets. I am therefore convinced that no branch of the public service is more appreciated by our citizens. Permit me to invite your attention to the statement made upon this subject in my communication one year ago, and to add here the recommendation that hereafter, in the erection of electric lights, they shall be so proportioned in number and in illuminating power, that a light shall be placed not only at the corners of streets, but at each and every alley, thus affording an efficient aid to the police service. The total expenditures of the city's electric lights to date are \$526,184.47.

POLICE DEPARTMENT.

This arm of the city service has been more or less the subject of unjust and unreasonable criticism by the press. While

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the natural increase in population and especially to the great influx of strangers drawn hither by the Columbian Exposition.

Several improvements have been introduced during the past eighteen months for the government of the force, and others designed to better its efficiency are in contemplation.

EDUCATIONAL.

There is nothing within the range of political economy that more enriches the world, and no more potent factor in the development and advancement of an enlightened civilization than a comprehensive system of public education.

The methods and achievements of past generations have been recognized and improved by the people of the present period, and it is gratifying that the record indicates Chicago to be in the front rank in her facilities and methods for training the minds and moulding the characters of the youth of to-day, and preparing for the coming generations. It is also gratifying that the public school system of our city receives that generous support and attention from our citizens that its magnitude and importance is entitled to. In 1887 the amount appropriated and otherwise available for educational purposes was nearly two and one-quarter millions of dollars. In 1888 nearly two and one-half millions; in 1889 about the same amount; in 1890 nearly four and three-quarter millions, and the present year over five and one-half millions. Thus it will be seen that over seventeen and one-quarter millions of dollars have been appropriated during the past five years for the construction and maintenance of our schools. About eighty-six per cent. of this amount is from taxation, the balance the revenue from school property.

There are 218 school buildings, with a seating capacity of 125,000. There were 186 school rooms added during the past year; over half a million dollars were expended during the same period for additional land and buildings.

The total enrollment of pupils for the school year reaches nearly 139,000. There are nearly 7,000 pupils in buildings rented at an expense of nearly \$32,000, which, capitalized at four per cent., equals \$800,000.00, or representing the interest on the estimated cost of ten sixteen-room buildings. Comment is unnecessary.

There has been expended for school purposes in the annexed districts about one and one-quarter millions of dollars; to meet this the same territory provides a trifle over three-quarters of a million dollars. Night schools cost the city nearly \$77,000 during the year; the compulsory feature, about \$15,000; deaf and dumb tuition, \$5,000; manual training, \$10,000; music, nearly \$13,000; drawing, over \$17,500; physical culture, about \$15,500; foreign languages, over \$115,000.

It is estimated that the average pupil leaves the public schools about the age of twelve to fourteen years; hence to avail him or herself of the advantages of the various branches taught in our schools, and also to acquire a fair knowledge of those essential branches that will best fit them for the battle of life, they should be studious and industrious during their limited period of attendance.

PUBLIC LIBRARY.

The interest in our public library increases as our city grows. The librarian reports for the twelve months ending March 1st, 1891, the circulation of over one and one-quarter million books; nearly 18,000 volumes were added during the past year, making the total number in the main building and in the twenty-four branch stations located throughout the city, 161,000. A glance at the reading rooms and the number of books issued, is evidence that the advantage, utility and value of the institution is fully appreciated by the public. It is hoped that this grand library may, in the near future, be housed in a safe and desirable building of its own, of a character and magnitude commensurate with its needs and usefulness.

During the year there were condemned as unfit for use 4,727 volumes, and 5,283 volumes were transferred to the "Newberry Library."

BUILDING DEPARTMENT.

The record of this department submitted one year ago for the preceding year exceeded (up to that time) any year in the history of the city. I am pleased to note the fact that the past year's operations in buildings greatly exceeds the previous year.

In 1889 7,590 buildings were erected, covering over thirty-four miles of street frontage, costing \$31,516,000.

During the year just closed 11,640 structures have been added, covering a street frontage of nearly fifty-one miles and costing nearly \$48,000,000. This unexampled material progress and vast investment of capital in our city, would indicate to the average man that people have not only an abiding faith in Chicago at the present time, but also in her future greatness.

The total number of buildings in the city is estimated at 150,000.

HOUSE OF CORRECTION.

During the year 7,253 males and 1,204 females, a total of 8,457 persons, were committed to this institution. Eighteen deaths occurred; ten of the unfortunates died in from one to ten days after entering the prison, indicating that at the time of sentence they were in all probability fit subjects for a hospital rather than a penal institution. The same may be said of ninety persons received, afflicted with that deplorable disease of mind and body—delirium tremens. Such cases should be committed to and received at the Washingtonian Home, or some similar institution established for the care and treatment of inebriates and those suffering from the excessive use of intoxicating drink.

The city annually appropriates \$20,000 towards the maintenance of the Washingtonian Home and therefore should be

entitled to some privileges. I commend this subject to the consideration of this honorable body and to the humanitarians of our city.

The receipts in 1889 for boarding the persons of surrounding towns were \$20,500. Many of the largest of these towns after annexation with the city ceased to pay the per capita for persons, so the receipts from this source last year were reduced to a trifle over \$8,000.00. The expenditures, however, during the past year show a decrease of more than \$25,000.00 over 1889. The Superintendent has succeeded in securing 1,300 volumes, the voluntary contributions of our citizens, as a nucleus of a library, for the benefit and instruction of the inmates. The younger inmates of both sexes during their stay also receive a daily course of instruction from a competent teacher. These new features of prison life at this institution are calculated to improve the mental and moral condition of the inmates and thus, as far as circumstances will permit, making the institution in deed, as well as in name, a House of Correction.

LAW DEPARTMENT.

The volume of business in this department has increased, not only in proportion to the additional area and the varied and conflicting interests consequent upon merging the legislative and executive branches of several town and city governments into one, but many questions have arisen involving the interests of citizens and the rights of the city which required care, patience, and legal skill, to satisfactorily dispose of.

The Supreme Court of our State rendered an important opinion during the year, upon the question of damages on account of the erection of a viaduct, which was tried by the City Law Department. The court, for the first time, lays down the rule that the benefit accruing to property from the construction of a great public improvement, can be set off against the damage, if any, to the property.

A large number of cases involving claims for damages against the city, has been brought during the past year, on account of Western and Ashland avenue viaducts; but no verdicts have been obtained against the city except the actual cost of raising the buildings to the new grade, formed by the viaduct approaches.

The custom during the past two years has been to secure a formal waiver to damages of property from the owners on the line of a proposed viaduct before commencing work.

There are now pending 534 cases, 116 on account of viaduct damages and 156 so-called personal injury suits. All these come down from past years. There are also pending 176 miscellaneous cases. Two hundred and twenty suits have been disposed of during the past twelve months.

CITY COLLECTOR.

The City Collector reports collections for 1890 of \$3,571,164.86, an increase of \$202,589.85 over previous year.

One of the most important and gratifying events of the year is the legislation on the part of this Council in conjunction with the Columbian Exposition Company and Art Institute of this city, by which the citizens of Chicago will be in possession of a spacious and magnificent edifice, to be located on the lake front at some point south of Monroe street, to be used during the term of the great Exposition in connection with that event, and afterwards to become a permanent temple of art for the education and entertainment of the people. This additional and highly desirable feature of metropolitan life will be carried on under the auspices and management of the Art Institute Association of Chicago, and its permanent existence in our midst will doubtless tend to exert an educational and refining influence among the lovers of high art.

MISCELLANEOUS.

The following tabulation of data not referred to in the body of this report, with approximate estimate of cost and valuations, is submitted for reference :

| | Actual Cost. | Cash Value. |
|---|---------------------|---------------------|
| Water Works, | \$17,000,000 | \$50,000,000 |
| Sewers, | 11,000,000 | 11,000,000 |
| School Property, | 10,000,000 | 11,000,000 |
| Police Property, | 550,000 | 844,000 |
| Fire Property, | 2,000,000 | 2,500,000 |
| Public Library, | 300,000 | 232,000 |
| Street Lamps, | 750,000 | 750,000 |
| Electric Light Property, | 500,000 | 2,000,000 |
| Real Estate, | 1,000,000 | 1,000,000 |
| Buildings, | 2,000,000 | 2,000,000 |
| House of Correction, | 800,000 | 1,000,000 |
| | <u>\$45,900,000</u> | <u>\$82,326,000</u> |
| Liabilities, bonded debt, | | 18,545,400 |
| Making a total (net) value of city property of | | <u>\$68,780,600</u> |
| Assessed valuation of real and personal | | |
| property, | \$219,354,368 | 00 |
| Total amount of levy for city purposes, . | 4,397,087 | 36 |
| Revenue for licenses, | 3,000,000 | 00 |
| Number of steam railways entering city, | | 35 |
| Miles of street railway track laid, | | 396 |
| Miles electric wire, | | 1,200 |
| Acres in public parks, | | 3,290 |
| Miles of drives, | | 74 |
| Miles of streets in city, | | 2,300 |
| Number of river bridges, | | 61 |
| Number of viaducts, | | 29 |
| Number of street lamps, | | 37,000 |
| Miles of river frontage, | | 41 |
| Arrivals and departure of vessels, | | 19,000 |
| Vessels' tonnage, | | 8,744,000 |

I desire to reiterate the views expressed in my last annual communication, relative to the justice of requiring a reasonable annual compensation to the city from private corporations, for the use of streets. The present administration uniformly urged this policy, which has in all cases been concurred in by this Council. The amount conditioned for the purpose on the basis of mileage or a per centum on gross earnings, has been so small that it could not be justly regarded unfair or in the nature of a restriction. With rare exceptions all ordinances of this kind have been promptly accepted by the applicants.

IN CONCLUSION,

I avail myself of this opportunity to convey to the citizens of Chicago, expressions of profound appreciation of the high honor they conferred upon me two years ago by calling me to this station and for the continued evidence of their confidence and respect.

I have ever been justly sensible of the grave and important responsibilities resting upon me in the discharge of the varied and frequently delicate duties of the office. It has been my sincere desire to faithfully and diligently serve Chicago and her citizens to the best of my ability without distinction as to race, class or section. Soon after the commencement of my official term, I was confronted by new and extraordinary conditions and environed with increased labors and responsibilities, due to annexation of extensive additions of territory and a consequent large increase in population, thus involving more or less radical changes in the scope and methods of municipal administration.

In order to conserve the welfare and interests of the incoming citizens, avoid legal complications and consolidate the public affairs of a number of town and city corporations into one, with uniform and systematic methods of management, required the best efforts of every department of the city government.

I suppose it is safe to say that no public officer can hope to escape the shafts of criticism, especially in a great cosmopolitan community like that of Chicago, where liberty of thought and expression is the right of every citizen, and where it is freely exercised, sometimes by worthy and estimable people, who entertain peculiar notions and ideas upon the subject of municipal reform, theories which are doubtless commendable and desirable in the abstract but would probably be found somewhat impracticable in a great metropolis, because not in accord with the views and sentiments of a great majority of the people.

I need not dwell further upon the past—I prefer to let the record speak for itself; a record which forms one of the brightest pages in the history of the material growth and commercial prosperity of this great city.

In severing my official relations with the members and officers of the City Council, I beg to tender to them, individually and collectively, my thanks for their uniform forbearance, courtesy and respect. To each and all of the heads of departments and their assistants who have been associated with me in the executive branch of the city government, I am officially indebted for whatever success may have attended our efforts in promoting the interests of the public.

The ceaseless march of time has brought my official term to a close; it therefore only remains for me to turn over to my successor the control of municipal affairs, and resume my place as a private citizen of Chicago.

DE WITT C. CREGIER,
Mayor.

FIFTEENTH ANNUAL REPORT

OF THE

Department of Public Works

CITY OF CHICAGO

INDEX.

FRONTISPIECE.

Portrait Wm. B. Ogden, First Mayor of Chicago.
Portrait De Witt C. Cregier, Present Mayor of Chicago.

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Department of Public Works

CITY OF CHICAGO.

COMMISSIONER.

W. H. PURDY.

SECRETARY.

D. S. MEAD.

Heads of Bureaus.

ENGINEERING.

| | |
|------------------------------------|----------------|
| CITY ENGINEER, | W. R. NORTHWAY |
| ASSISTANT CITY ENGINEER, | BERNHARD FEIND |

SEWERS.

| | |
|---------------------------|--------------|
| SUPERINTENDENT, | O. H. CHENEY |
|---------------------------|--------------|

STREETS.

| | |
|-------------------------------------|--------------|
| SUPERINTENDENT, | L. E. MCGANN |
| ASSISTANT SUPERINTENDENT, | JOHN GOODWIN |

SPECIAL ASSESSMENTS.

| | |
|---------------------------|-------------|
| SUPERINTENDENT, | H. J. JONES |
|---------------------------|-------------|

WATER RATE COLLECTIONS.

| | |
|---------------------------|----------------|
| SUPERINTENDENT, | H. E. HAMILTON |
|---------------------------|----------------|

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| | |
|---------------------------|----------------|
| SUPERINTENDENT, | R. A. MANSTEIN |
|---------------------------|----------------|

| | |
|---|------------------|
| DEPARTMENT BOOK-KEEPER, | F. C. MEYER |
| PURCHASING AGENT, | J. D. C. WHITNEY |
| CHIEF CLERK WATER RATES, | H. T. MURRAY |
| WATER RATE ASSESSOR, | T. PATTISON |
| WATER PERMIT CLERK, | H. G. NAPER |
| CASHIER, | JOHN W. LYONS |
| REGISTRAR WATER RATES, | B. F. JENKINS |
| ENGINEER IN CHARGE NORTH PUMPING WORKS, | HENRY WELCH |
| ENGINEER IN CHARGE WEST PUMPING WORKS, | JAMES STEWART |
| ENGINEER CANAL PUMPING WORKS. | W. J. CULLITON |
| ENGINEER FULLERTON AVENUE PUMPING WORKS, | A. D. HOWELL |
| ENGINEER SIXTY-EIGHTH STREET PUMPING WORKS, | ROBERT HAWKINS |
| ENGINEER SULZER AVENUE PUMPING WORKS, | F. D. PARKER |
| SUPERINTENDENT WATER METERS, | G. J. BAKER |
| SUPERINTENDENT BRIDGE REPAIRS, | J. B. TOOHY |

REPORT
OF THE
Commissioner of Public Works
CITY OF CHICAGO

COMMISSIONER'S REPORT.

OFFICE OF THE COMMISSIONER OF PUBLIC WORKS, }
CITY HALL.

*To the Honorable, the Mayor and City Council
of the City of Chicago:*

GENTLEMEN:—This, the Fifteenth Annual Report of the Department of Public Works herein presented to your Honorable Body, embraces not only the public improvements accomplished by the Department for the year 1890, but also presents in brief a historic review of the incidents connected with the early settlers of Chicago, their methods in establishing the first village organization, and later, adopting a city government.

The scattered and almost obsolete history of the primitive methods and doings of those in charge of the public improvements which followed these organizations is of sufficient importance to justify the effort to restore and perpetuate such record marking the growth of Chicago, from the erection of the first public building at a contract price of twenty dollars, the distribution of water for domestic use by carts from Lake Michigan, until a later date, when the population had increased sufficiently to construct and set in motion the great pumping machinery, carrying to the houses of her citizens an abundant supply of water. With this event, Chicago began to assume the position of a real city—its rapid advancement from an Indian settlement in 1832, to such era, had been marked, and its continued remarkable growth in population and wealth, notwithstanding its almost total destruction by the great fire of 1871, has placed it among the first cities of the continent and made it the marvel of the world.

The distinguished honor recently conferred upon the city of Chicago by the United States Government, in its selection as the site for the World's Columbian Exposition, is a positive recognition of the commercial and mercantile importance of our city, and a high compliment to the enterprise, influence and intelligence of its citizens.

Now that Chicago has accepted this great trust, and taken upon itself such enormous responsibility, with its success guaranteed, there should be no lack of a liberal support towards this branch of the city government in

making it possible to construct and maintain public thoroughfares and grounds, and in placing general public improvements in a condition adequate to the high character and importance of the greatest international event of all time.

Chicago entering upon so grand a future has stimulated a demand for public improvements in all portions of the city, and particularly in the South division. While such demands are actuated largely from speculative motives, many are required to keep pace with the substantial growth and extension of the business and residence portions of the city. This increase in the volume of street improvements necessarily compels the city to withdraw as far as possible its contribution from the general fund to the cost of such work, and must allow the property benefited to assume the full payment of such improvements.

The municipal year closes leaving the funds at the disposal of the department absorbed in consequence of the demands made upon it by an unprecedented year of activity in the various bureaus, for notwithstanding the energy and ability thus exercised, the department has been taxed to its fullest capacity. There are many desirable and needed improvements unaccomplished, by reason of an inadequate appropriation of funds. The department, in the expenditure of such money, has endeavored to wisely and justly distribute the sum in the various divisions and districts of the city in a manner to serve the best interests of the masses, and, at all times, to discriminate against any reckless or illegal expenditure of money in advancing personal or local interests.

The following will, in a condensed form, represent the work accomplished by the department during the past year:

EXTENSION OF WATER SYSTEM.

133.13 miles of water pipe, from four to thirty-six inches in diameter, were laid during the year, making a total of 1205.16 miles now laid in the city.

| | |
|---|----------|
| 1,153 new water valves were added: total in place | 8,595 |
| 1,389 new fire hydrants were added: total in place | 11,836 |
| 1 fire cistern was constructed: making a total of..... | 54 |
| 20,695 new house service taps were added, making a total of..... | 153,979* |
| 20,695 new house service pipes were added, making a total of.... | 153,979* |
| The number of service taps inserted in water mains, including re-taps and taps inserted for enlarged service pipes to building previously supplied, is..... | 21,812 |

*These amounts do not include the water service pipes and taps inserted in the annexed districts previous to annexation, no record having been kept for such purpose.

EXTENSION OF SEWERAGE SYSTEM.

There were constructed during the year 71,818 miles of brick and pipe sewers, from nine inches to seven and one-half feet in diameter, making a total of.....784,737 miles.

2,986 new catch-basins were added, making a total of..... 26,489

2,604 man-hole chambers were added, making a total of..... 29,990

Old catch-basins were raised to grade, numbering..... 3,063

Old man-hole chambers raised to grade, numbering..... 3,227

Old catch-basins and man-holes repaired, numbering..... 187

Number of catch-basins cleaned..... 11,950

Sewers cleaned to the extent of.....294 miles.

House drains laid, amounting to46.75 miles.

STREET IMPROVEMENTS.

There were 108.38 miles of streets improved during the past year.

There were 215,295 square yards of street pavement repaired.

There were 188,548 square yards of pavement laid by the various street railway companies in streets occupied by their tracks.

Total streets in the city..... 2,235.71 miles.

Total streets paved in the city 669.64 miles.

New sidewalks constructed..... 432.75 miles.

Sidewalks repaired 179.10 miles.

Total sidewalks in city..... 2,537.00 miles.

Streets cleaned 7,136.64 miles.

Number of aprons, culverts, crossings, etc., built..... 7,249

Sidewalk intersections constructed..... 2,304

Number of street lamps (gas) 26,236

Number of street lamps (oil and gasoline)..... 9,090

Number of street lamps (electric) 929

Total number of street lamps in the city 36,255

Street lamps repaired... 54,842

Number of buildings removed 1,710

MAPS AND PLATS MADE.

| | |
|--|--------------|
| For new subdivisions | 617 |
| For street improvement assessments | 607 |
| For opening, widening and vacating streets and alleys..... | 531 |
| For sewerage assessments | 67 |
| For sidewalks..... | 841 |
| For Street Engineer's estimates..... | 617 |
| For lamp posts..... | 1,866 |
| For Law Department..... | 552 |
| For survey maps | 215 |
| For miscellaneous purposes..... | 123 |
| Total | <u>6,036</u> |

TOTAL ASSESSMENTS PREPARED.

| | |
|--|--------------|
| For improvement of streets and alleys..... | 421 |
| For private drains..... | 135 |
| For water service pipes..... | 201 |
| For street and alley openings | 31 |
| For new sidewalks..... | 503 |
| For gas lamps..... | 256 |
| For Dyott champion lamps..... | 2 |
| For gasoline lamps..... | 41 |
| For sewers..... | 236 |
| Total | <u>1,826</u> |

MISCELLANEOUS.

SPECIAL IMPROVEMENTS.

Building iron bridge across West branch of river at Jackson street—village of Jefferson (annexed).

Furnishing all material and labor for the completion of an electric light plant at the House of Correction.

Building engine at House of Correction.

Constructing and operating temporary pumping works at Seventy-third street and Perry avenue.

Sweeping and cleaning improved streets.

Furnishing and placing in position cast iron work in the "Administration Wing" of the House of Correction.

Dredging Chicago river and branches.

Fixtures for incandescent lights at House of Correction.

Laying stone sidewalk at North avenue and Larrabee street police station.

Constructing bridge over North branch of Chicago river at N. Western avenue.

Constructing sub-structure and trestle approaches to N. Western avenue.

Building cylindric cut brick tunnel in Lake View.

Constructing electric light plant at Fourteenth street and Indiana avenue, including steam boilers for same.

Constructing buildings for Fourteenth street pumping works.

Laying new hardwood floor at Central pumping works.

Building sub-structure for swing bridge at Taylor street.

Erecting hook and ladder house—Normal Parkway.

Erecting hook and ladder house at 332 Fifty-fifth street.

Constructing Washington street viaduct including sub-structure for same.

Constructing steel floor and brick arches at Fourteenth street pumping works.

Erecting fire engine house at Irving avenue and Park boulevard.

Erecting frame fire engine house corner Wentworth avenue and Fifty-third street.

Erecting fire engine house at 83 W. Erie street.

Erecting fire engine house at northwest corner One hundred and fifth street and Hoxie avenue.

Erecting fire engine house at northwest corner Balmoral and Ashland avenues.

Erecting fire engine house at southeast corner Fortieth and Dearborn streets.

Constructing bridge at Canal street including sub-structure for same.

Constructing swing bridge and sub-structure for same at Ninety-fifth street.

Constructing bridge and sub-structure for same at Weed street.

Painting and decorating Central pumping station.

Purchasing heater purifier for Fourteenth street electric light plant.

Erecting shafting and clutch pulleys at Fourteenth street pumping works.

Constructing swing bridge at Thirty-fifth street.

CONTRACTS.

Contracts were entered into by the city for public improvements and various classes of material under the immediate supervision of this department, incurring an expenditure of \$5,436,438.34, as follows:

| | | | |
|-----|---|-------------|----|
| 381 | Contracts for street and alley improvements, at a cost of. | \$2,214,304 | 31 |
| 17 | Contracts for curbing, filling and grading streets, aggregating..... | 66,571 | 48 |
| 159 | Contracts for water service pipes, costing..... | 159,165 | 20 |
| 8 | Contracts for constructing fire engine houses, costing.... | 21,355 | 00 |
| 4 | Contracts for electric light plant, fixtures for incandescent lights, engines and iron work for House of Correction, aggregating..... | 8,943 | 25 |
| 1 | Contract for special castings for water pipe, costing..... | 12,879 | 67 |
| 7 | Contracts for cast iron water pipe, costing..... | 882,341 | 15 |
| 1 | Contract for hydrant and stop valve castings, costing.... | 6,819 | 02 |
| 1 | Contract for sweeping and cleaning streets, amounting to. | 110,594 | 89 |
| 3 | Contracts for dredging Chicago river, amounting to.... | 29,121 | 12 |
| 1 | Contract for man-hole and catch-basin curbs and covers. | 14,884 | 78 |
| 1 | Contract for cast iron covers for hydrant chambers..... | 4,182 | 67 |
| 1 | Contract for tug service..... | 1,800 | 00 |
| 1 | Contract for corporation ferrules..... | 6,666 | 58 |
| 6 | Contracts for cut stone, mason and carpenter work, iron roof, steel floor and brick arches, shafting and clutch-pulleys, and steam pipe and valve connections for Fourteenth street pumping station, aggregating..... | 93,852 | 00 |
| 2 | Contracts for hardwood floor and painting and decorating Central pumping works, costing..... | 2,675 | 00 |
| 4 | Contracts for iron roof, heater and purifier, six steam boilers, and construction of building for Fourteenth street electric light station, aggregating..... | 31,967 | 22 |
| 21 | Contracts for coal for pumping stations, police and fire departments, city hall building, bridges, etc., aggregating... | 256,982 | 50 |
| 9 | Contracts for new bridges, aggregating..... | 121,990 | 98 |
| 2 | Contracts for furnishing pig lead, costing..... | 26,663 | 75 |
| 1 | Contract for filling city lot, between One Hundred and Fifth and One Hundred and Sixth streets, about 200 feet from Torrence avenue..... | 5,661 | 15 |
| 1 | Contract for water tunnel at Lake View, estimated at.... | 350,000 | 00 |
| 1 | Contract for bulkhead and sewer outlet, costing..... | 512 | 00 |
| 149 | Contracts for private house drains, aggregating..... | 76,076 | 33 |
| 238 | Contracts for constructing sewers, aggregating..... | 727,561 | 26 |

| | | |
|---|----------|----|
| Contracts for teaming for water and sewer departments, costing | \$54,484 | 67 |
| 3 Contracts for furnishing lumber for water, sewer and street departments, aggregating..... | 55,063 | 06 |
| Miscellaneous contracts for constructing stone and plank sidewalks, costing..... | 65,880 | 00 |
| 2 Contracts for constructing viaduct on Washington street, aggregating..... | 27,459 | 30 |

FINANCIAL.

Statement of the sum appropriated by the City Council, together with various amounts from other sources, to be expended in public improvements under the supervision of the Department, for the year 1890:

| | | | |
|--|--------------|---------|----|
| Balance January 1, 1890, to credit of water, sewerage, general improvement, and City Hall funds..... | \$ | 248,868 | 62 |
| From appropriation for 1890..... | 2,295,465 | 20 | |
| For rent of Rookery lot..... | 35,000 | 04 | |
| For interest on water fund investment..... | 29,229 | 27 | |
| From water revenue, including tapping permits and delinquents | 2,202,724 | 58 | |
| From bonds sold..... | 439,780 | 00 | |
| From bonds on hand..... | 435,500 | 00 | |
| From advances to lay water mains..... | 126,324 | 06 | |
| From advances to construct sewers..... | 5,836 | 00 | |
| From drain permits and drain layers' licenses..... | 84,124 | 05 | |
| From deposits for sundry improvements..... | 88,731 | 97 | |
| From special assessment and other funds..... | 307,069 | 02 | |
| From house moving permits..... | 5,231 | 00 | |
| From Comptroller, for annexed territory..... | 132,206 | 40 | |
| From deposits for street permits..... | 50,870 | 00 | |
| For labor and material..... | 198,516 | 24 | |
| From special assessments..... | 6,987,155 | 48 | |
| Total..... | \$13,672,631 | 93 | |

Of this amount expenditures have been made from the sewerage and general appropriations and from funds of annexed territory, as follows :

| | | |
|--|-------------|----|
| For bridges and viaducts, dredging river, street cleaning and repairing, public buildings and parks, Fullerton avenue and Canal pumping works, improving street intersections, sewers, catch-basins, salaries, labor and material..... | \$2,974,641 | 31 |
| For South side pumping works, on account of construction... | 112,788 | 47 |
| For Central pumping works..... | 93,291 | 09 |

| | |
|---|------------------------|
| For extension of water pipe system..... | \$1,319,198 43 |
| For meter and private work by water department..... | 93,235 04 |
| For new lake tunnel..... | 216,674 70 |
| For new lake tunnel crib..... | 136,860 73 |
| For new land tunnel..... | 28,985 66 |
| For Lake View water tunnel..... | 74,745 11 |
| For water loan interest..... | 309,624 50 |
| For new shore inlet extension..... | 716 10 |
| For advances refunded..... | 24,909 79 |
| For maintenance of water system, operating, pumping works, cost of assessing and collecting water taxes, material on hand, etc..... | 912,892 99 |
| For street improvements, street openings, sidewalks, private drains, water service pipes, and lamp posts..... | 3,309,538 58 |
| For rebate (excess of assessments over cost of improvements), abatements to property owners doing their own work, land damages and assessments held over and annulled by the City Council..... | 3,677,616 90 |
| Balance December 31, 1890, to credit of water, sewerage, city hall and general appropriation funds..... | 386,912 53 |
| Total..... | <u>\$13,672,631 93</u> |

WATER WORKS.

The report of the City Engineer furnishes interesting information concerning the condition and present capacity of the pumping machinery for delivering to the citizens the quantity of water required daily for domestic and other uses.

The city, at present, is supplied with 22 pumping engines of various types and power, representing a total engine capacity for delivering daily 260,000,000 gallons of water. From measurements obtained, there was pumped during the year a daily average of over 154,000,000 gallons, which is nearly 60 per cent. of the total capacity of the pumping power of the engines now in use. The rate of pumpage at certain times during the day reaches very closely to the total capacity.

The annexed portions brought with them an imperfect system of water supply which has caused much annoyance and inconvenience to the citizens of such districts and great expense to the city of Chicago. The improvements made by the city, especially in the system of large supply mains, will remedy to a great extent the local evils complained of last year.

As to the four-mile lake tunnel, while its progress has been unavoidably delayed in consequence of defective soil, causing engineering difficulties,

arrangements are being perfected to provide for the use of the two and one-half mile crib for a temporary intake, which, with ordinary success, can be made available about October next.

The extension of the "shore inlet" tunnel when completed will place the shore intake about 4,500 feet from shore, and will be available by the middle of the summer, and, under ordinary conditions, will furnish water sufficiently pure for general use. By utilizing the additional tunnel capacity expected to be made available by the early fall, there will be an ample supply of water to furnish all pumping engines then ready for use at the various stations, and there will be added to the present daily pumping capacity about 45,000,000 gallons, reaching a total daily capacity of about 300,000,000 gallons.

The ground provided for occupancy by the buildings of the pumping station situated on the northwest corner of Indiana avenue and Fourteenth street, has a frontage of 192.6 x 310.55 feet. In addition to these grounds, and in connection therewith, the city is in possession of two twenty-five foot lots, on the southwest corner of Indiana avenue and Fourteenth street, which are occupied by one of the city's electric light plants.

The city also owns two twenty-five foot lots on the southeast corner of Michigan avenue and Fourteenth street, occupied by a double two-story and basement frame building; and on the northeast corner of Michigan avenue and Fourteenth street, a twenty-five foot lot with a three-story and basement stone front building.

The original ground plan for the pumping station, as designed by the former administration, provided for an encroachment of twenty-five feet on Fourteenth street, and use of the two sets of two lots each, described above, for widening the street on the opposite side, also the erection of a stand pipe upon the other lot named.

Upon a thorough investigation of these plans by the present administration it was found that a great saving could be made to the city by placing the front wall of the station fifteen feet farther north and encroaching only ten feet on old Fourteenth street. This change enabled the city to locate the electric light plant upon the property opposite formerly intended for street purposes, and, with the abandonment of the erection of a stand pipe tower, made it possible for the city to preserve the buildings standing upon the remaining three lots, leaving them available for renting purposes. The advantages to the city in consequence of these changes can safely be estimated as follows:

| | |
|--|--------------|
| For surplus of real estate not used and convertible..... | \$65,000 00 |
| For saving by change of plans of buildings..... | 10,000 00 |
| For abandonment of stand pipe tower..... | 25,000 00 |
| <hr/> | |
| Making a total saving to the city of..... | \$100,000 00 |

The changes thus made from the original plans do not in any way impair the utility or capacity of the pumping plant at this point, and leave in the city treasury a considerable sum which would have otherwise been used for the merely secondary purpose of improving the grounds around the station.

PIPE SYSTEM.

Water pipes were laid during the year as follows:

| | |
|----------------------------|---------------|
| Four (4) inch..... | 6,505 feet. |
| Six (6) inch..... | 467,035 feet. |
| Eight (8) inch..... | 188,745 feet. |
| Twelve (12) inch..... | 87,904 feet. |
| Sixteen (16) inch..... | 1,480 feet. |
| Twenty-four (24) inch..... | 25,908 feet. |
| Thirty (30) inch..... | 5,538 feet. |
| Thirty-six (36) inch..... | 18,519 feet. |
| Forty eight (48) inch..... | 1,325 feet. |
| Total..... | 702,759 feet. |

The whole being equal to 133.13 miles. Small pipe taken up and abandoned, 4.04 miles; net pipe added to the system during the year, 129.09 miles—making a total of 1205.16 miles of water mains laid within the city limits.

| | |
|---|--------|
| Fire hydrants placed in position during the year.... | 1,389 |
| Hydrants taken out and replaced by others of different sizes..... | 9 |
| Net number of hydrants added to the system..... | 1,380 |
| Total number of fire hydrants now in use..... | 11,836 |
| Stop valves put in place during the year..... | 1,153 |
| Total number now in use..... | 8,595 |

WATER METERS AND ENGINES.

| | |
|---|-------|
| Number of new meters put in during the year..... | 458 |
| Number of old meters removed..... | 112 |
| Net increase..... | 346 |
| Total number of meters now in use..... | 3,924 |
| Number of city meters removed and replaced by new ones..... | 56 |
| Total number of meters repaired and charged for..... | 906 |
| Total number of meters repaired and not charged for..... | 485 |

The revenue derived from water measured by these meters and engines for the past year amounts to \$871,160.10, an increase of \$78,949.19 over the amount collected from the same source last year.

WATER WORKS RECEIPTS AND EXPENDITURES FOR 1890.

RECEIPTS.

| | | |
|---|-------------|----|
| Water rates collected (including delinquents)..... | \$2,109,508 | 34 |
| Water service cocks (permits and plumbers' licenses)..... | 98,216 | 24 |
| Water meters, labor, etc., for private parties..... | 75,721 | 64 |
| Rent of Rookery lot..... | 35,000 | 04 |
| Advances to lay water pipe..... | 126,324 | 06 |
| Bonds sold..... | 439,780 | 00 |
| Interest from investment..... | 29,229 | 27 |
| Old material sold..... | 13,915 | 45 |
| Miscellaneous..... | 1,958 | 53 |
| Total..... | \$2,924,653 | 57 |

EXPENDITURES.

| | | |
|---|-------------|----|
| For extension of water pipe system..... | \$1,319,198 | 43 |
| For water works repairs..... | 175,475 | 21 |
| For water service pipe and tapping department..... | 65,168 | 44 |
| For meter and private work..... | 93,235 | 04 |
| For North pumping works..... | 148,048 | 86 |
| For West pumping works.... | 101,322 | 72 |
| For South Side pumping works..... | 112,788 | 47 |
| For Central pumping works..... | 117,452 | 73 |
| For Sixty-eighth Street pumping works..... | 85,520 | 23 |
| For Lake View pumping works..... | 32,821 | 60 |
| For Washington Heights pumping works..... | 295 | 22 |
| For Lake View water tunnel..... | 74,745 | 11 |
| For Michigan avenue city property..... | 725 | 38 |
| For new water tunnels..... | 245,660 | 36 |
| For new lake tunnel crib..... | 136,860 | 73 |
| New shore inlet extension..... | 716 | 10 |
| For lake tunnel crib..... | 6,775 | 73 |
| For interest on water loan..... | 309,624 | 50 |
| For advances for laying water main refunded..... | 24,909 | 79 |
| For water rents refunded..... | 184 | 47 |
| For salaries and office expenses, water collection office..... | 214,647 | 22 |
| For other salaries and office expenses payable from water fund. | 8,892 | 48 |
| For brick, lead and other material..... | 24,186 | 47 |
| For miscellaneous..... | 24,667 | 32 |
| Total..... | \$3,323,922 | 61 |

Total cost of water works of the city to December 31, 1890, is as follows:

Cost up to May 6, 1861, when the works were transferred
from the Board of Water Commissioners to the Board
of Public Works.....\$ 1,020,160 21

EXPENDITURES SINCE 1861.

| | |
|---|-----------------|
| Cost of water pipe laid (including labor)..... | \$ 9,117,681 93 |
| Cost of North pumping works..... | 918,573 14 |
| Cost of West pumping works..... | 896,849 37 |
| Cost of first lake tunnel..... | 464,866 05 |
| Cost of second lake tunnel..... | 415,709 36 |
| Cost of lake crib protection..... | 149,431 63 |
| Cost of new lake tunnel..... | 449,109 79 |
| Cost of land tunnel to West pumping works..... | 542,912 63 |
| Cost of new land tunnel..... | 283,880 04 |
| Cost of lake tunnel crib..... | 70,319 10 |
| Cost of lake shore inlet..... | 42,871 17 |
| Cost of new lake shore inlet | 89,474 17 |
| Cost of new lake shore inlet extension..... | 716 10 |
| Cost of water works shop..... | 25,551 73 |
| Cost of water works stock..... | 29,318 00 |
| Cost of water reservoir fence..... | 1,702 87 |
| Cost of addition to stable..... | 1,019 48 |
| Cost of real estate for sites of new pumping works..... | 206,972 35 |
| Cost of works annexed territory..... | 1,160,164 24 |
| Cost on account of Central pumping works..... | 328,324 57 |
| Cost on account of Lake View water tunnel..... | 74,745 11 |
| Cost on account of South Side pumping works..... | 254,531 93 |
| Cost on account of new lake crib..... | 329,123 38 |
| Cost on account of breakwater | 28,181 93 |

Total cost of the entire water works to December 31, 1890. \$16,902,190 28

Paid for as follows:

| | |
|--|----------------|
| From general taxes..... | \$2,713,878 53 |
| From city of Chicago water loan bonds, 6 per cent..... | 132,000 00 |
| From city of Chicago water loan bonds, 7 per cent..... | 2,847,000 00 |
| From city of Chicago water loan bonds, 3 $\frac{5}{8}$ per cent..... | 333,000 00 |
| From city of Chicago water loan bonds, 4 per cent..... | 150,000 00 |
| From city of Chicago water loan bonds, 3 $\frac{1}{2}$ per cent..... | 493,000 00 |
| From city of Chicago water loan bonds, canceled..... | 859,000 00 |

COMMISSIONER'S REPORT.

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| | |
|---|------------------------|
| From Hyde Park water loan bonds, 5 per cent..... | \$ 50,000 00 |
| From Hyde Park water loan bonds, 7 per cent..... | 384,000 00 |
| From Town of Lake water loan bonds, 5 per cent..... | 179,900 00 |
| From Town of Lake water loan bonds, 7 per cent..... | 222,000 00 |
| From Lake View water loan bonds, 4 per cent..... | 50,000 00 |
| From Lake View water loan bonds, 5 per cent.... | 23,000 00 |
| From Lake View water loan bonds, 7 per cent..... | 75,000 00 |
| From water fund revenues..... | 8,390,411 75 |
| | <u>\$16,902,190 28</u> |

Total water works income to December 31, 1890.....\$25,193,724 15

Total operating expenses and maintenance to December 31,
1890, (including interest \$7,012,759.34, on bonded debt
and bonds canceled).....16,877,920 31

Difference between income and expenses.....\$ 8,315,803 84

Accounted for as follows :

| | |
|--|-----------------------|
| Paid toward water works construction..... | \$8,390,411 75 |
| American Exchange National Bank, N. Y..... | 133,230 94 |
| John W. Lyon, Cashier (petty cash)..... | 1,691 88 |
| M. Moriarty (petty cash)..... | 100 00 |
| W. S. Maher (petty cash)..... | 50 00 |
| Meter department, stock on hand.... | 13,765 30 |
| Tapping department, stock on hand..... | 4,879 26 |
| Shop and stable, stock on hand..... | 4,659 60 |
| City Treasurer..... | 9,829 07 |
| Water pipe, etc., on hand..... | 106,695 90 |
| | <u>\$8,665,313 70</u> |

| | |
|---|-------------------|
| Less amount due depositors for hydrant wrenches..... | \$ 1,390 00 |
| Less amount to credit of shop..... | 492 42 |
| Less amount to credit of annexed territory.. | 197,875 48 |
| Less amount advanced by private parties to lay water pipe in non-paying districts..... | 149,751 96 |
| | <u>349,509 86</u> |

Total as above.....\$ 8,315,803 84

BONDED DEBT OF WATER WORKS.

City of Chicago water loan bonds outstanding December 31, 1890, bearing 7 per cent. interest, and maturing as follows:

| | | |
|-------------------|--------------|----------------|
| July 1, 1892..... | \$821,000 00 | |
| July 1, 1894..... | 541,000 00 | |
| July 1, 1895..... | 1,485,000 00 | |
| | <hr/> | \$2,847,000 00 |

Bearing 6 per cent., maturing as follows:

| | | |
|-------------------|-------------|------------|
| July 1, 1897..... | \$50,000 00 | |
| July 1, 1898..... | 82,000 00 | |
| | <hr/> | 132,000 00 |

Bearing 3- $\frac{1}{10}$ per cent., maturing as follows:

| | | |
|-------------------|------------|--|
| July 1, 1902..... | 333,000 00 | |
|-------------------|------------|--|

Bearing 4 per cent. interest, maturing as follows :

| | | |
|-------------------|------------|--|
| July 1, 1908..... | 150,000 00 | |
|-------------------|------------|--|

Bearing 3½ per cent. interest, maturing as follows :

| | | |
|-------------------|------------|----------------|
| July 1, 1909..... | 493,000 00 | |
| Total | <hr/> | \$3,955,000 00 |

ANNEXED DISTRICTS.

Town of Lake water bonds :

| | | |
|---|-------------|--------------|
| 5 per cent. bonds, due April 1, 1891..... | \$15,000 00 | |
| 5 per cent. bonds, due April 1, 1892..... | 14,900 00 | |
| 5 per cent. bonds, due April 1, 1893..... | 15,000 00 | |
| 5 per cent. bonds, due April 1, 1894..... | 15,000 00 | |
| 5 per cent. bonds, due April 1, 1895..... | 15,000 00 | |
| 5 per cent. bonds, due April 1, 1896..... | 15,000 00 | |
| 5 per cent. bonds, due April 1, 1897..... | 15,000 00 | |
| 5 per cent. bonds, due April 1, 1898..... | 15,000 00 | |
| 5 per cent. bonds, due April 1, 1899..... | 15,000 00 | |
| 5 per cent. bonds, due April 1, 1900..... | 15,000 00 | |
| 5 per cent. bonds, due April 1, 1901..... | 15,000 00 | |
| 5 per cent. bonds, due April 1, 1902..... | 15,000 00 | |
| 7 per cent. bonds, due January 1, 1894..... | 107,000 00 | |
| 7 per cent. bonds, due July 1, 1894..... | 115,000 00 | |
| | <hr/> | \$401,900 00 |

Hyde Park water bonds :

| | | |
|---|-------------|--------------|
| 5 per cent. bonds, due January 1, 1904..... | \$50,000 00 | |
| 7 per cent bonds, due July 1, 1893..... | 30,000 00 | |
| 7 per cent. bonds, due January 1, 1894..... | 23,000 00 | |
| 7 per cent. bonds, due January 1, 1895..... | 322,000 00 | |
| 7 per cent. bonds, due January 1, 1896..... | 9,000 00 | |
| | <hr/> | \$434,000 00 |

Lake View water bonds :

| | | |
|--|-------------|------------|
| 5 per cent. bonds, due July 1, 1904..... | \$23,000 00 | |
| 4 per cent. bonds, due July 1, 1907..... | 50,000 00 | |
| 7 per cent. bonds, due July 1, 1895..... | 75,000 00 | 148,000 00 |
| | <hr/> | <hr/> |

Total bonded debt of water works \$4,938,900 00

Total interest paid on water loan, to January 1,
1891..... \$7,012,759 34

Under the various orders and ordinances of the City Council, amounts have been rebated on water rates during the year, as follows :

| | |
|--|--------------------|
| On educational, religious and charitable institutions, under ordinance of November 21, 1884..... | \$17,623 12 |
| Municipal and Board of Education, under ordinance of July 30, 1885..... | 23,964 75 |
| By special orders of the City Council..... | 336 87 |
| | <hr/> |
| Total amount rebated..... | <u>\$41,924 74</u> |

The following table indicates the quantity of water furnished, the total revenue received, and the average amount per million gallons annually, from 1858 to 1890, both years inclusive:

| YEAR. | MILLION GALLONS FURNISHED. | REVENUE. | REVENUE PER MILLION GALLONS. |
|------------------------------|----------------------------------|--------------|------------------------------------|
| 1858..... | 1,092 | \$102,178 85 | \$93 57 |
| 1859..... | 1,415 | 122,753 50 | 86 70 |
| 1860..... | 1,717 | 131,162 73 | 76 39 |
| 1861..... | 1,766 | 131,035 10 | 74 15 |
| 1862..... (15 months).... | 2,705 | 188,448 25 | 85 00 |
| 1863.. (9 months)..... | 2,336 | 192,246 39 | 82 29 |
| 1864..... | 2,523 | 224,902 57 | 89 14 |
| 1865..... | 2,778 | 253,114 49 | 91 11 |
| 1866..... | 3,169 | 302,017 59 | 95 30 |
| 1867..... | 4,232 | 338,929 28 | 80 08 |
| 1868..... | 5,375 | 420,686 94 | 78 26 |
| 1869..... | 6,801 | 476,968 24 | 70 13 |
| 1870..... | 7,945 | 539,180 19 | 67 86 |
| 1871..... | 8,423 | 445,834 64 | 52 93 |
| 1872..... | 10,051 | 544,465 90 | 54 17 |
| 1873..... | 11,723 | 708,804 32 | 60 46 |
| 1874..... | 13,903 | 705,926 64 | 50 77 |
| 1875..... (9 months)..... | 10,957 | 635,996 54 | 58 04 |
| 1876..... | 15,346 | 771,940 38 | 50 30 |
| 1877..... | 19,047 | 908,509 64 | 47 70 |
| 1878..... | 19,564 | 944,190 97 | 48 31 |
| 1879..... | 20,557 | 922,001 26 | 44 85 |
| 1880..... | 21,002 | 865,618 35 | 41 21 |
| 1881..... | 23,331 | 936,922 07 | 40 16 |
| 1882..... | 24,150 | 1,049,576 90 | 43 46 |
| 1883.. (9 months)..... | 26,742 | 1,142,868 54 | 42 73 |
| 1884..... | 29,286 | 1,204,338 74 | 41 12 |
| 1885..... | 33,451 | 1,339,038 00 | 40 03 |
| 1886..... | 35,693 | 1,374,837 32 | 38 52 |
| 1887..... | 37,199 | 1,490,023 68 | 40 05 |
| 1888..... | 38,122 | 1,557,116 78 | 40 84 |
| 1889..... | 40,504 | 1,621,786 34 | 40 04 |
| 1890..... | 56,338 | 2,202,724 58 | 39 07 |

SEWERAGE.

The sewerage system has been extended in the various divisions of the city during the past year as follows:

| | |
|--|----------------------|
| Constructed in the West Division..... | 16.299 miles. |
| Constructed in the South Division..... | 41.766 miles. |
| Constructed in the North Division..... | 13.753 miles. |
| Total | <u>71.818 miles.</u> |

| | |
|--|-------|
| Number of catch-basins built..... | 2,986 |
| Number of man-hole chambers built..... | 2,604 |

The cost of constructing sewers and catch-basins during the year was as follows:

| | |
|---------------------|-------------------|
| West Division..... | \$ 261,638 96 |
| South Division..... | 438,233 54 |
| North Division..... | 126,846 17 |
| Total..... | <u>826,718 67</u> |

| | |
|--|---------|
| Total number of catch-basins..... | 26,489 |
| Total number of man-hole chambers..... | 29,990 |
| Total number of miles of sewers in the city..... | 784,737 |

MAINTENANCE OF SEWERAGE.

The cost of cleaning and repairing sewers, the cost per mile, and number of miles, also the number of catch-basins and man-hole chambers distributed in the three divisions of the city, is as follows:

| DIVISIONS. | MILES OF SEWERS. | NUMBER OF CATCH-BASINS. | NUMBER OF MAN-HOLE CHAMBERS. |
|-------------|------------------|-------------------------|------------------------------|
| West..... | 319.074 | 10,968 | 11,337 |
| South | 312.246 | 10,041 | 12,258 |
| North | 153.417 | 5,480 | 6,395 |
| TOTALS..... | 784.737 | 26,489 | 29,990 |

The cost of repairing sewers during the year was \$14,648.97, being an average cost of \$18.67 per mile.

The cost of cleaning was \$107,873.34, making the average cost \$137.46 per mile.

The total cost of both repairs and cleaning was \$122,522.31, an average cost of \$156.13 per mile.

Of the 784,739 miles of sewers constructed, 360,694 miles are of brick, and 424,043 miles of vitrified pipe.

TOTAL COST OF SEWERS, ETC.

| DIVISIONS. | MILES. | COST. | AVERAGE COST PER MILE. |
|-------------|---------|-----------------|------------------------------|
| West..... | 319.074 | \$4,555,995 23 | \$14,278 80 |
| South..... | 312.246 | 4,248,277 59 | 13,605 05 |
| North..... | 153.417 | 2,161,397 16 | 14,088 38 |
| TOTALS..... | 784.737 | \$10,965,669 98 | \$13,973 68 |

BONDED SEWER DEBT.

Sewer bonds outstanding December 31, 1890, bearing 7 per cent. interest and maturing as follows:

| | |
|--|----------------|
| July 1, 1892..... | \$490,000 00 |
| July 1, 1894..... | 785,000 00 |
| July 1, 1895..... | 13,000 00 |
| July 1, 1890, bearing 4½ per cent. interest..... | 489,500 00 |
| July 1, 1904, bearing 4 per cent. interest..... | 458,000 00 |
| July 1, 1908, bearing 4 per cent. interest..... | 387,000 00 |
| Total sewerage debt..... | \$2,822,500 00 |

RIVER IMPROVEMENT BONDS.

Bonds outstanding December 31, 1889, bearing 7 per cent. interest and maturing as follows:

| | |
|--------------------------------------|----------------|
| July 1, 1892..... | \$ 249,000 00 |
| July 1, 1893..... | 500,000 00 |
| July 1, 1894..... | 346,000 00 |
| July 1, 1895..... | 1,263,000 00 |
| July 1, 1910, 3½ per cent bonds..... | 250,000 00 |
| Total River Improvement debt..... | \$2,608,000 00 |
| Grand total outstanding..... | \$5,230,500 00 |

| | |
|--|------------------|
| Total interest paid on Sewerage bonds to January 1, 1891. | \$ 5,023,236 00 |
| Total interest paid on River Improvement bonds to January 1, 1891..... | 4,122,925 00 |
| Total interest paid on Water Loan bonds to January 1, 1891, | 7,012,759 34 |
| Grand total of interest paid to January 1, 1891 | \$ 16,158,920 34 |

RIVER AND HARBOR.

From investigations made by the City Engineer it has been ascertained that the water in the lake and river has been lower during the year 1890 than for more than twenty years past.

Judging from the records of the fluctuations of the water levels in our inland lakes there is a somewhat regular rotation of rising and falling tendencies, and it is to be presumed that the present low stage of water has reached its limit, and from 1890 onward for some years there will occur a gradual rise in the water. The present stage of low water in the river is a great annoyance and damage to the larger type of vessels doing business in this port. The city, in consequence of a lack of funds, can hardly do anything towards dredging a through channel of proper depth, and can only provide for sufficient depth of water at and near draw-bridges.

The total amount expended by the city in dredging the Chicago river and its branches during the past year, was \$68,802.49.

The report of the Vessel Dispatcher shows the arrival and departure of vessels at this port and at South Chicago to be as follows :

| | ARRIVALS. | | CLEARANCES. | | TOTAL. | |
|----------------------------|-----------|-----------|-------------|-----------|--------|------------|
| | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| At Chicago harbor..... | 9,188 | 4,344,502 | 9,284 | 4,429,654 | 18,472 | 8,774,156 |
| At South Chicago harbor... | 360 | 707,670 | 801 | 634,225 | 1,661 | 1,841,895 |
| Totals..... | 10,048 | 5,052,172 | 10,085 | 5,063,879 | 20,133 | 10,116,051 |

The partial lighting of the river by electricity continues to afford satisfaction to the shipping interests of the lakes. It materially aids in the movements of vessels with safety at night and makes possible the loading and discharging of cargoes after dark, all of which is beneficial as the time spent in port is thereby greatly decreased. The advantages thus derived are of sufficient importance to warrant such further extension of the system as the finances of the city will permit.

BRIDGES AND VIADUCTS.

The cost for maintaining these structures for the year was as follows:

For general repairs of bridges and viaducts.....\$ 167,781 70
 Of this amount there was received for labor and material, and
 from vessels for damages to bridges..... 1,735 08
 Net cost to city for repairs of bridges and viaducts.....\$ 166,046 62

CANAL PUMPING WORKS.

In consequence of the accumulation of obstructions at the inlet basin connecting the river with the station, preventing a full and free flow of water to the pumps, the machinery at these works was allowed to remain idle during the month of January and the greater portion of February, and a thorough cleansing out of the obstructive sediment took place. The wisdom in accomplishing this improvement was demonstrated by the good results which followed. The work was done in the winter months when a stoppage of the pumps would be less deleterious to the quality of the river water than at any other season of the year, and the whole machinery was ready for duty at a season when most needed, the whole resulting in forcing a body of water into the canal equal to the full capacity of the latter and in a more than ordinary cleansing of the Chicago river through the year. The total cost of operating and maintaining these works during the year was \$77,386.83.

FULLERTON AVENUE PUMPING WORKS.

During the past year these works have forced from the lake into the river at Fullerton avenue 5,300,000,000 cubic feet of water; the operating and maintaining expenses of the same being \$15,620.63. These works have performed in a satisfactory manner their part in purifying the water of the Chicago river.

THE OGDEN DAM.

The Ogden dam performs an important part in the drainage system of the city by diverting the lower and middle stages of the waters of the Desplaines from the Chicago river, although it cannot in its present shape prevent the floods in the Desplaines from mingling with the Chicago river and producing or enhancing those periodical outpourings of the filthy contents of the latter into the lake near the source of our water supply. The repairs and improvements made last year upon this dam was money wisely expended and the dam is at this time in very fair condition. The amount expended during the past year for maintaining was \$1,104.64.

STREETS.

During the year streets were improved as follows:

| | |
|--|---------------|
| Paved with cedar blocks..... | 75.72 miles. |
| Paved with macadam..... | 21.40 miles. |
| Paved with granite blocks..... | 1.27 miles. |
| Paved with asphalt..... | .95 mile. |
| Paved with brick..... | .38 mile. |
| Total number of miles paved..... | 99.72 miles. |
| In addition to the above, streets were curbed and filled for.. | 8.66 miles. |
| Making a total of..... | 108.38 miles. |

The use of the proper material and the method of constructing roadways adapted to the wants of cities, is still taxing the ingenuity of inventive minds and has resulted in the production of new theories, and experiments in nature's own as well as the manufactured material.

It is admitted by all persons well informed on this subject, that a well constructed foundation, composed of a thick layer of macadam with a top finish of hydraulic concrete, forming a positively water-tight shed, and finished to a perfect grade, with a uniform surface to receive the wearing material of the road bed, is under all circumstances indispensable to a perfect roadway. Upon this foundation there can be laid a wearing surface of such material as may be adapted to the nature and extent of the traffic of the street or other local conditions. This permanent foundation will admit of its wearing surface being repaired or renewed, or other material substituted at comparatively small cost, and thus laid, further recommends itself as a sanitary measure, as, in its proper construction and gradient, the water and gas pipes are almost entirely exempt from injury by frost, thereby reducing to a minimum the escape of poisonous and obnoxious gases.

The pavements laid upon such a foundation of whatever material (provided it is the best of its kind), may be considered to a certain degree permanent; while laid upon one of less substantial material, must be classed as a temporary improvement.

Mr. Hirsch, Chief Engineer of the Bureau of Streets in this city, for many years closely connected with the construction of street improvements, and a close student of the merits of the various kinds of pavement, reports that the pine or cedar blocks, laid in uniform rows and made water-tight by filling the interstices with grouting of sand and Portland cement upon a rigid foundation, would furnish satisfactory service from six to ten years, varying in durability in proportion to the extent and nature of the travel on such thoroughfares. There is no doubt but that a rigid foundation, combined with an elastic wearing surface, will furnish a good pavement.

Mr. Hirsch reports D. K. Clark, a prominent English engineer, as saying in his work on roads and streets, that the "dogma of elastic action in wood pavement has been exploded by experience, for it was found that such a degree of elasticity as is afforded by the reaction of vertical wood fibre, against vertical pressure, is quite sufficient to absorb the shock of a horse's hoof, and to elude the strokes of loaded wheels." Mr. Hirsch's experience and observations with granite blocks as in use on our heavy traffic streets, is that they readily wear off on the sides, making them slippery, with insecure footing for horses, and are very noisy. Although attended with these serious objections, the granite paving block has proved a most successful and useful street covering.

The macademized roadway properly constructed with a top dressing or wearing surface of fine crushed granite, has proven quite useful, but it is not without its drawbacks. It requires prompt repairs and close attention to prevent the accumulation of mud and dust, and is not practical for streets of heavy traffic, but may be used for resident streets and boulevards.

The sheet asphalt pavement or wearing surface for private residence streets, properly constructed of refined Trinidad asphalt, is growing in popularity and has many desirable features to recommend it for general use ; and there is probably no pavement surpassing this for cleanliness and healthfulness.

From information obtained from cities having in use, for a number of years, well constructed sheet asphalt pavement, we feel justified in classing this kind of street improvement equal to any now known in the United States.

This pavement has fallen into disfavor in Europe, but it is just to state that the asphalt used in the cities of that continent is largely composed of limestone, rendering the composition hard, noisy and slippery, therefore differing greatly from the Trinidad asphalt used in American cities, which is composed mostly of solidified bitumen, which relieves the roadway to a great extent of the above objectionable features.

A. Gilmon, A. M., and Lieut. Col. U. S. Corps of Engineers, in his treatise on street pavement, says that "no asphaltic cement is suitable for all climates, and even the natural mineral tar of Seyssel, though well adapted for use upon the streets of Paris, requires to be mixed with a harder asphalt to enable it to withstand exposure to the sun in the United States."

Considerable attention is now being directed in bringing into use a paving brick from material said to be particularly adapted to such purpose, and favorable results are promised. This being a home production, its merits will be early tested and determined.

A patent is reported as having recently been issued in Berlin, Germany, for the manufacture of an artificial paving stone, the material consisting of sawdust, with a mixture of pulverized minerals—moulded into forms of paving stones by a powerful hydraulic pressure ; the experiments prove such blocks to be light, impervious to water, and imperishable, with little resistance to traction and nearly fire proof.

This kind of material, as also the brick paving blocks, have not been sufficiently tested to recommend their adoption for general use in paving streets.

DISTRIBUTION OF KINDS OF PAVEMENT.

The following shows the kind of pavement in use in each division of the city, December 31, 1890:

| DIVISIONS. | Wood Block. | Macadam. | Stone. | Asphalt Block. | Sheet Asphalt. | Grand Total. |
|-------------------------------|-------------|----------|--------|----------------|----------------|--------------|
| | Miles. | Miles. | Miles. | Miles. | Miles. | Miles. |
| North..... | 101.11 | 32.72 | .58 | ..... | 2.19 | 136.55 |
| South..... | 95.14 | 178.25 | 21.80 | 4.11 | 1.04 | 294.88 |
| West..... | 212.93 | 21.08 | 1.19 | ..... | 1.86 | 237.06 |
| Viaducts and Approaches | 1.15 | ..... | ..... | ..... | ..... | 1.15 |
| Total Miles..... | 410.38 | 227.05 | 23.06 | 4.11 | 5.09 | 669.64 |

The above table does not include 8.23 miles of streets repaved during the year.

Repaving and repairs have been made on improved streets in each division of the city as follows:

| | |
|--|-----------------------|
| South Division | 69,500 square yards. |
| West Division | 63,454 square yards. |
| North Division | 17,270 square yards. |
| Total..... | 150,224 square yards. |
| Amount of repairs by corporations..... | 65,091 square yards. |
| Total in the city..... | 215,315 square yards. |

STREET CLEANING.

The past year 5,717.80 miles of improved streets were swept and cleaned, under a contract between the city and Jno. S. Cooper, for the sum of \$25.99 per mile, the total cost being \$110,594.89. The work was commenced on April 15, and discontinued on November 30, 1890. Of improved streets, 1,767.94 miles of the business district were swept, under contract, by Jno. S. Cooper, at \$4.49 per mile, the city removing the sweepings, the total cost being \$7,938.04. Work in this district was commenced in April and discontinued in November. The total amount expended under both contracts was \$110,594.89.

STREET RAILWAYS.

During the year the street railway companies paved the portion of the various streets occupied by their tracks, as shown in the following table :

| CORPORATIONS. | Granite Blocks, Square Yards. | Cedar Blocks, Square Yards. | Cobble- stone, Square Yards. | Total Square Yards. |
|---------------------------------|--|--------------------------------------|---------------------------------------|---------------------------|
| Chicago City Railway Co..... | 82,342 | ..... | ..... | 82,342 |
| North Chicago St. R. R. Co..... | 13,722 | 8,233 | 2,933 | 24,888 |
| West Chicago St. R. R. Co. | 4,738 | 51,341 | 25,239 | 81,318 |
| TOTALS | 100,802 | 59,574 | 28,172 | 188,548 |

The total mileage of tracks in use by the several street railroad companies is :

| | |
|---|----------------------|
| North Chicago Street Railroad Co..... | 80.30 miles. |
| Chicago City Railway Co..... | 152.95 miles. |
| West Chicago Street Railroad Co..... | 142.89 miles. |
| Chicago Passenger Railway Co.... | 6.00 miles. |
| Calumet Electric Street Railway Co..... | 3.06 miles. |
| Cicero and Proviso Electric Railway Co..... | 4.80 miles. |
| Chicago & South Side Rapid Transit Co. | 3.70 miles. |
| West Lake Street Elevated Railroad Co..... | 1.60 miles. |
| Total..... | <u>395.30 miles.</u> |

SIDEWALKS.

The following table shows the various kinds of material used in the construction and repair of sidewalks during the year:

| DIVISION. | MATERIAL. | | | Total Miles. | Sidewalks Repaired. | Total Work. |
|-------------|-----------|--------|-----------|-----------------|------------------------|----------------|
| | Wood. | Stone. | Concrete. | | | |
| South..... | 123.65 | 12.15 | 27.65 | 163.45 | 40.76 | 204.21 |
| West | 184.45 | 9.85 | 8.45 | 202.75 | 125.14 | 327.39 |
| North..... | 43.35 | 10.05 | 13.15 | 66.55 | 13.20 | 79.75 |
| TOTALS..... | 351.45 | 32.05 | 49.25 | 432.75 | 179.10 | 611.85 |

Of the above, there have been built of plank walks 37.35 miles by the city under special assessments.

The total number of miles of sidewalk laid in the city, including those constructed on highways controlled by the Park Commissioners, is as follows:

| | MATERIAL. | | | Total Miles. |
|---------------------------------|-----------|--------|-----------|--------------|
| | Wood. | Stone. | Concrete. | |
| City | 2,240.05 | 163.83 | 75.84 | 2,479.72 |
| Boulevards to West Parks..... | | 11.05 | .895 | 11.945 |
| Boulevards to South Parks..... | | 12.30 | 1.44 | 13.74 |
| Boulevards to Lincoln Park..... | | 2.17 | 2.05 | 4.22 |
| Total miles..... | 2,240.05 | 189.35 | 80.225 | 2,509.625 |

Wood sidewalks replaced by stone and concrete..... 27.38

Making the total number of miles in the city..... 2,537.005

STREET LAMPS.

| DIVISION. | OIL LAMPS. | | | | GASOLINE LAMPS. | | | |
|---|----------------------------------|----------------------------|--------|-------------------------------|-----------------------------------|----------------------------------|----------------------------|--------|
| | No. in City, Jan. 1, 1890. | Erected during 1890. | Total. | Discontin- ued in 1890. | No. in City, Dec. 31, 1890. | No. in City, Jan. 1, 1890. | Erected during 1890. | Total. |
| North, including Lake View... | 252 | ..... | 252 | 15 | 237 | 412 | 262 | 674 |
| South, including Hyde Park, Lake, West Beaumont, Gano and Washington Heights | ..... | 219 | 219 | ..... | 219 | 2,742 | 966 | 3,708 |
| West, including Jefferson and Cicero.... | 527 | 27 | 554 | ..... | 554 | 3,560 | 1,039 | 4,599 |
| TOTALS..... | 779 | 246 | 1,025 | 15 | 1,010 | 6,714 | 2,267 | 8,981 |
| DIVISION. | GAS LAMPS. | | | | ELECTRIC LIGHTS. | | | |
| | No. in City, Jan. 1, 1890. | Erected during 1890. | Total. | Discontin- ued in 1890. | No. in City, Dec. 31, 1890. | No. in City, Jan. 1, 1890. | Erected during 1890. | Total. |
| North, including Lake View... | 4,752 | 627 | 5,379 | 637 | 4,742 | 57 | 186 | 193 |
| South, including Hyde Park, Town of Lake and South Chicago..... | 7,662 | 1,147 | 8,809 | 404 | 8,405 | 192 | 112 | 304 |
| West..... | 12,464 | 1,648 | 14,112 | 1,023 | 13,069 | 154 | 278 | 432 |
| TOTALS..... | 24,878 | 3,422 | 28,300 | 2,064 | 26,386 | 403 | 526 | 929 |
| Total number of Street Lamps in the city, 36,418. | | | | | | | | |

EXPENSE OF LIGHTING.

The following table shows the cost of lighting the city and maintaining lamps during the year ending December 31, 1890, including the cost of extinguishing under schedules adopted by the Council:

| | |
|---|---------------------|
| Total cost of lighting and maintaining gas lamps..... | \$500,525 58 |
| For material and lighting oil lamps..... | 104,687 35 |
| For gasoline used by city for maintaining lamps..... | 41,884 03 |
| For maintaining electric lights..... | 37,845 32 |
| | <u>\$683,942 28</u> |
| Less from collections..... | 1,558 27 |
| Total cost of lighting the city..... | <u>\$682,384 01</u> |

ELECTRIC LIGHTING.

The system of lighting the streets of the city with electric lights was established in the year 1887, at which time a certain portion of the territory situated within the city limits was set apart to be thus lighted. This territory was divided into twelve districts, each of which was to be furnished with an independent electric light plant of ample power to supply sufficient light for each of said districts, the boundaries of which are designated as follows:

District Number 1 is bounded on the north by the Chicago river, on the south by Twenty-second street, on the east by Lake Michigan and on the west by the South Branch of the Chicago river.

District Number 2 is bounded on the north by Twenty-second street and South Branch, on the south by Thirty-ninth street, on the east by Lake Michigan, and on the west by Halsted street.

District Number 3 is bounded on the north by the South Branch of the Chicago River, on the south by Thirty-ninth street, on the east by Halsted street, and on the west by Crawford avenue.

District Number 4 is bounded on the north by North avenue, on the south by Chicago river and Kinzie street, on the east by Lake Michigan, on the west by Carpenter street and North Branch of the Chicago river.

District Number 5 is bounded on the north by Fullerton avenue, on the south by North avenue, on the east by Lake Michigan, and on the west by the North Branch of the Chicago river.

District Number 6 is bounded on the north by Kinzie street, on the south by Sixteenth street, on the east by the South Branch of the Chicago river, and on the west by Western avenue.

District Number 7 is bounded on the north by Sixteenth street, on the south by South Branch of the Chicago river, on the east by the South Branch of the Chicago river, and on the west by Western avenue.

District Number 8 is bounded on the north by North avenue, on the south by Kinzie street, on the east by Carpenter street and the North Branch of the Chicago river, and on the west by Western avenue.

District Number 9 is bounded on the north by Fullerton avenue, on the south by North avenue, on the east by North Branch of the Chicago river and on the west by Kedzie avenue.

District Number 10 is bounded on the north by North avenue, on the south by Kinzie street, on the east by Western avenue, and on the west by Crawford avenue.

District Number 11 is bounded on the north by Kinzie street, on the south by Sixteenth street, on the east by Western avenue, and on the west by Crawford avenue.

District Number 12 is bounded on the north by Sixteenth street, on the south by the South Branch of the Chicago river, on the east by Western avenue, and on the west by Crawford avenue.

| DISTRICTS. | Estimated Number of Electric Lights required to Light Respective Districts. | Number of Electric Lamps in Service in the Respective Districts, February 21st, 1891. | Balance Required. |
|----------------|---|---|-------------------|
| Number 1..... | 500 | 305 | 196 |
| Number 2..... | 750 | ..... | 750 |
| Number 3..... | 600 | ..... | 600 |
| Number 4..... | 600 | 221 | 379 |
| Number 5..... | 500 | ..... | 500 |
| Number 6..... | 1,000 | 296 | 704 |
| Number 7..... | 400 | ..... | 400 |
| Number 8..... | 500 | 108 | 392 |
| Number 9..... | 400 | ..... | 400 |
| Number 10..... | 700 | ..... | 700 |
| Number 11..... | 800 | ..... | 800 |
| Number 12..... | 600 | ..... | 600 |
| TOTAL..... | 7,850 | 930 | 6,481 |

The increased number of electric lights placed in position during the past year meets with unusual approval, and among the preparations for

receiving the world's millions on the great coming event, there is, perhaps, nothing which will contribute more to the glory and beauty of our city than well improved, cleanly and brilliantly lighted thoroughfares.

From present estimates of the City Electrician the cost of lighting the streets under such system exceeds the cost of lighting by gas, but such excess is attributed to the incomplete lighting of any one district; but such discrepancy will be remedied in the near future when the whole of such districts shall be fully lighted as provided for.

From Professor Barrett's report it will be seen that the total number of arc lights placed in position displacing gas lights is nine hundred (900), the gas lights thus removed numbering 3,621, making an average of one electric light for four gas lamps, with the candle or illuminating power of the electric light greatly exceeding such proportions.

The following table gives the annual extensions of the system from 1887. to the present date, including the total cost of the same:

| YEAR. | Number of Power Houses Erected. | Calculated Capacity of Power Houses in 2,000 Candle Power Lights. | Horse Power of Engines installed. | Number of Arc Lights placed in Operation as a result of Appropriation each Year. | Number of Arc Lights Displacing Gas. | Number of Gas Lights Displaced. | Average Number of Gas Lights each Year for each Electric Light. | Average Displacement of Gas for All Years. | Expended for Electric Light Construction and Maintenance. |
|-----------|---------------------------------|---|-----------------------------------|--|--------------------------------------|---------------------------------|---|--|---|
| 1887..... | * 1 | † 125 | 125 | 105 | 76 | ..... | ..... | ..... | \$ 89,976.25 |
| 1888..... | * 1 | † 300 | 800 | 192 | 192 | 826 | 3 | 4 | 69,414.25 |
| 1889..... | 3 | 3,000 | 1,500 | 372 | 372 | 1,452 | 3 ² / ₁₀ | ..... | 307,856.62 |
| 1890..... | 1 | 850 | 425 | 260 | 260 | 1,843 | 5 ¹ / ₁₀ | ..... | 139,630.60 |
| | 4 | 3,850 | 1,925 | 929 | 900 | 3,621 | ..... | ..... | \$556,877.72 |

* Abandoned.

† Moved to Number 1.

| | |
|---|-------------|
| Cost of 900 2,000-C. P. arc lights, \$83.00 | \$74,700 00 |
| Cost of 3,621 20-C. P. gas lights, \$20.00 | \$72,400 00 |
| Total candle power 900 2,000-C. P. arc lights | 1,800,000 |
| Total candle power 3,621 gas lights, 20-C. P. | 72,420 |
| Cost per candle power for arc lights..... | \$0 04 |
| Cost per candle power for gas lights..... | \$1 00 |

THE CITY ELECTRIC LIGHT SYSTEM COMPRISES:

| | |
|---|---------|
| Power Stations..... | 4 |
| 125 H. P. high speed engines | 13 |
| 300 H. P. Corliss engine..... | 1 |
| 100 H. P. tubular boilers, heaters, pumps, etc..... | 6 |
| 125 H. P. tubular boilers, heaters, pumps, etc..... | 15 |
| Double carbon lamps..... | 1,029 |
| Lamp posts and hoods..... | 929 |
| 60 light high tension dynamos..... | 3 |
| 60 light low tension dynamos..... | 4 |
| 35 light high tension dynamos..... | 11 |
| 35 light low tension dynamos..... | 6 |
| 30 light low tension dynamos..... | 14 |
| Miles of electric light cable..... | 169 |
| Number of feet of underground conduit..... | 12,109 |
| Number of feet of iron pipe laid underground..... | 500,614 |
| Number of man-holes..... | 248 |
| Number of hand-holes..... | 125 |

PARKS.

Under an ordinance passed by the City Council, Campbell Park was given up to the management and control of the West Park Commissioners.

The cost of maintaining the various parks under the control of this department during the past year was as follows:

| | |
|--|------------|
| Lake Park..... | \$2,626 74 |
| Ellis Park..... | 911 10 |
| Douglas Monument Square..... | 733 20 |
| Aldine Square..... | 861 02 |
| Campbell Park and Bickerdike Square..... | 326 00 |
| Union Square, Green Bay Park and Oak Park..... | 196 05 |
| Washington Square..... | 2,693 03 |
| Shedds Park..... | 125 00 |
| Gross Park..... | 146 04 |
| Jefferson (Town) Park..... | 555 62 |
| Total expenditures..... | \$9,173 80 |

The report of the Commissioner of Buildings shows that during the past year 11,608 buildings were erected, extending over an aggregate frontage of 266,284 lineal feet, or over 50 miles, at a cost of over \$47,322,100, the same being distributed in the divisions of the city as follows:

| DIVISION. | NUMBER BUILDINGS ERECTED. | AGGREGATE FRONTAGE IN FEET. | FRONTAGE IN MILES. | ESTIMATED VALUE. |
|------------------|---------------------------------|-----------------------------------|-----------------------|---------------------|
| North | 1,558 | 37,573 | 7.10 | \$6,081,300 00 |
| South..... | 6,061 | 137,375 | 26.01 | 27,603,200 00 |
| West | 3,994 | 91,336 | 17.30 | 13,687,600 00 |
| GRAND TOTAL..... | 11,608 | 266,284 | 50.41 | \$47,322,100 00 |

COMPARISON WITH SEVEN PREVIOUS YEARS.

| YEAR. | NUMBER BUILDINGS ERECTED. | AGGREGATE FRONTAGE IN FEET. | FRONT- AGE IN MILES. | ESTIMATED VALUE. |
|----------------------------|---------------------------------|-----------------------------------|----------------------------|---------------------|
| 1883..... | 4,086 | 85,588 | 16.2 | \$17,500,000 00 |
| 1884..... | 4,169 | 98,782 | 18.6 | 20,689,800 00 |
| 1885..... | 4,638 | 108,850 | 20.6 | 19,624,100 00 |
| 1886..... | 4,664 | 112,302 | 21.2 | 21,324,400 00 |
| 1887..... | 4,833 | 115,506 | 21.8 | 19,778,100 00 |
| 1888..... | 4,958 | 116,419 | 22.0 | 20,360,800 00 |
| 1889 | 7,590 | 181,126 | 34.3 | 31,516,000 00 |
| 1890..... | 11,608 | 266,284 | 50.4 | 47,322,100 00 |
| Totals for eight years.... | 46,546 | 1,084,857 | 205.1 | \$198,115,100 00 |

There were moved under the supervision of the Department of Public Works, 1,566 frame and 139 brick buildings, a total of 1,705. They varied from one to four stories high, and had a frontage of 33,992 lineal feet, or nearly six and one-half miles.

CONCLUSION.

I will respectfully refer you to the reports in detail of the superintendents of the various bureaus for interesting and instructive information concerning the progress, extent and condition of the improvements accomplished under their jurisdiction and supervision.

The faithful and efficient service rendered the city by these officers, in the performance of their responsible duties, commands my approbation, and merits the approval of those in control of the city government.

It is my pleasure to express my appreciation and gratitude to his Honor, Mayor Cregier, for his valuable co-operation in important matters and events, resulting in the successful consummation of important public transactions contributing to the highest interests of the city of Chicago.

To the honorable members of the City Council I am indebted for personal and official courtesies extended during the past year.

Respectfully,

W. H. PURDY,
Commissioner.

MISCELLANEOUS DATA—1890.

| | |
|--|-----------------|
| Chicago covers an area of nearly one hundred and eighty and two-tenths square miles, or..... | 115,328 acres |
| Population of the city as per school census of 1890..... | 1,208,669 |
| Total city bonded indebtedness..... | \$13,545,400.00 |
| Total value of real estate, buildings, etc., owned by the city | \$34,346,181.42 |
| Assessed valuation of real and personal property.... | \$219,354,368 |
| Number of public school buildings owned by the city.... | 221 |
| Number of rented buildings used for school purposes.... | 65 |
| Average number of children attending public schools.... | 119,602 |
| Average number of children attending private schools... | 65,016 |
| Number of teachers in public schools..... | 2,920 |
| Number of teachers in private schools..... | 1,854 |
| Number of churches..... | 397 |
| Number of railroads entering the city.... | 35 |
| Number of street car companies..... | 8 |
| Number of miles of street railroad track laid.... | 395.30 |
| Number of police station buildings..... | 28 |
| Number of men employed on the force..... | 1,900 |
| Number of horses in use..... | 163 |
| Number of patrol wagons..... | 37 |
| Number of ambulance wagons..... | 2 |
| Number of fire engine and hook and ladder houses..... | 89 |
| Number of fire engines..... | 67 |
| Number of fire boats..... | 3 |
| Number of hook and ladder trucks.... | 26 |
| Number of chemical fire engines..... | 21 |
| Number of firemen employed..... | 913 |
| Number of horses in use in department..... | 387 |
| Number of police and fire alarm boxes..... | 1,830 |
| Number of miles of electric wire used by the city..... | 1,200 |
| Number of electric lights for street lighting purposes.... | 929 |
| Number of acres in public parks..... | 2,123.18 |
| Number of miles of drives in parks and boulevards.... | 73.9 |
| Number of miles of walks in parks..... | 50.23 |
| Number of miles of streets in city..... | 2,235.71 |
| Miles of paved streets..... | 669.64 |
| Miles of sidewalks..... | 2,537 |
| Miles of main sewers..... | 784.52 |
| Miles of water mains..... | 1,205 |
| Miles of water tunnels in use..... | 9.5 |
| Miles of water tunnels in process of construction..... | 7.8 |

DEPARTMENT OF PUBLIC WORKS.

| | |
|--|--------------------|
| Number of river traffic tunnels..... | 3 |
| Number of bridges over the Chicago river..... | 3 |
| Number of bridges over the Calumet river..... | 1 |
| Number of bridges over the canal..... | 1 |
| Number of viaducts over railroad tracks..... | 19 |
| Number of street lamps in the city..... | 14,18 |
| Number of miles river frontage (both sides)..... | 71 |
| Number of vessels arriving during the year..... | 6,138 |
| Number of vessels departing during the year..... | 1254 |
| Tonnage representing a tonnage..... | 8,744,156 |
| Number feet of lumber received..... | 964,000,000 |
| Number bushels of grain received..... | 193,788,770 |
| Number barrels of flour received..... | 1,058,068 |
| Number head of hogs, cattle and sheep received..... | 1,054,232 |
| Number of pounds of cured and dressed beef received.. | 9,908,075 |
| Bank clearings for the year..... | \$1,093,145,904.45 |
| Post office receipts from stamps, cards, envelopes and money orders..... | \$13,248,656.45 |
| Number pieces of mail matter handled..... | 26,273,617 |
| Number of clerks employed..... | 71 |
| Number of carriers employed..... | 320 |
| Number of horses in use..... | 10 |

REPORT
OF THE
Bureau of Engineering
CITY OF CHICAGO

CITY ENGINEER'S REPORT.

CHICAGO, February 15, 1891.

W. H. PURDY, Esq.,

Commissioner of Public Works.

DEAR SIR:—I submit herewith the Annual Report of the Bureau of Engineering for the year 1890, the Fifteenth Annual Report under the Department of Public Works.

WATER SUPPLY.

The Central pumping station, on Harrison street, between Desplaines and Halsted streets, commenced to do actual service in connection with the city water supply on July 14th, but no formal record and report exists up to September 1st. This station contains two (2) "Allis" vertical, condensing, triple expansion engines, of a capacity of 15,000,000 gallons per day each with two-thirds ($\frac{2}{3}$) of the number of boilers in use, and of 18,000,000 with the full number of boilers in use. This station is naturally dependent upon the new four-mile lake tunnel and its land ramifications; but, until such time as water can be had through these, its proper feeders, it is supplied from the old seven-foot land tunnel which connects the North and West Side stations; there is, however, water to spare only for one of the two new engines at a time. The two engines have not yet been tested and formally accepted by the city.

At the Sixty-eighth street pumping station (the former Hyde Park and Lake pumping stations combined), a new Worthington horizontal compound condensing engine of a capacity of 12,000,000 gallons per day was tested on October 23rd, but has not yet been formally accepted by the city.

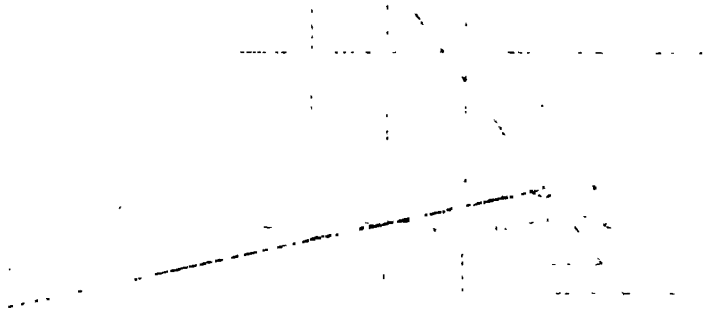
No further addition to the pumping capacity of any of the stations took place during the year, nor have any important changes been made in the old pumping machinery; but there have been some minor alterations in parts of the engines, besides the ordinary repairs.

Following is a table of actual engine capacities of present pumping stations:

| STATIONS. | No. of En- gines. | TYPES OF ENGINES. | CAPACITIES OF ENGINES. | CAPACITIES OF STATIONS. | REMARKS. |
|----------------------------------|-------------------------|--|------------------------------|-------------------------------|--|
| Lake View—Sulzer street ... | 1 | Gaskill..... | 12,000,000 | 19,000,000 | |
| | 1 | Worthington. | 5,000,000 | | |
| | 1 | Vergennes... | 2,000,000 | | |
| North Side—Chicago avenue | 1 | Condensing Beam..... | 36,000,000 | 98,000,000 | { Shallow suctions; out of wa- ter often. |
| | 1 | Condensing Beam..... | 18,000,000 | | |
| | 1 | Condensing Beam..... | 12,000,000 | | |
| | 1 | Condensing Beam..... | 8,000,000 | | |
| | 2 | Gaskill— 12,000,000 each..... | 24,000,000 | | |
| West Side—Twenty-sec'd st. | 4 | Compound Condensing Beam— 15,000,000 each..... | 60,000,000 | 60,000,000 | |
| Central—Harrison street ... | 2 | Allis— 15,000,000 each..... | 30,000,000 | 30,000,000 | { Water for one only. Not yet tested and accepted. |
| Hyde Park—Sixty-eighth st. | 1 | Worthington. | 12,000,000 | 58,000,000 | { Tested, but not yet ac- cepted. |
| | 2 | Gaskill— 12,000,000 each..... | 24,000,000 | | |
| | 1 | Holly Verti- cal..... | 8,000,000 | | |
| | 2 | Gordon & Maxwell— 8,000,000 each..... | 6,000,000 | | |
| | 1 | Knowles.... | 3,000,000 | | |
| Grand total engine capacity..... | | | | 280,000,000 | |



PLAN OF
NEW 4 MILE LAKE TUNNEL
WITH ITS
LAND RAMIFICATIONS.



The total quantity pumped during the year was 56,337,617,658 gallons; the average quantity, therefore, pumped during the day was 154,349,637 gallons, and the average per inhabitant per day was 128.62 gallons. In these amounts is included the pumpage of the Central station from July 14th to August 31st, which has not been recorded and formally reported, but has been computed on the basis of the average pumped per day at that station during the balance of the year.

By the annexation of the suburb of Washington Heights on November 4, 1890, the city acquired another small water works system, of which no account has been taken in any of the tabulated or platted records.

There is an artesian well, a deep-well pump of a capacity of 300 gallons per minute; which pumps against a head of twenty-two feet into a reservoir of 60,000 gallons capacity, a duplex pump of 500 gallons per minute which pumps from the reservoir into the mains and into an elevated tank against a head of 115 feet, one boiler and one boiler feed pump, and about seventeen miles of pipe from six inches to eight inches in diameter, with the necessary stop gates and fire plugs.

The pumpage during November and December, 1890, amounted to 8,235,000 gallons.

For details I refer to Exhibits "A" to "E" (the reports of the engineers in charge of pumping stations), to Plate 11, containing pumpage diagrams, and to the tables and diagrams attached to the "Brief History of the Public Water Supply System of the City of Chicago."

To the three submerged wrought iron intake pipes at Lake View pumping station (one 20-inch—2,000 feet long, one 20-inch—1,400 feet long, and one 16-inch—1,700 feet long), a fourth was added, 30-inch—1,100 feet long. The aggregate capacity of these four pipes is about 28,000,000 gallons, and is by no means out of proportion to the present engine capacity of 19,000,000 gallons, because the intake ends of the pipes are very apt to become choked, especially with slush ice in winter, and because in the pipes themselves large deposits of matter previously held in suspension are easily formed. An efficient means to guard against the choking of the inlets by ice in future appears, however, to have been found at the present writing (middle of February). A one and one-fourth-inch pipe has been strung along the largest of the intake pipes (the 30-inch, 900 feet long), and firmly attached to it by a diver; its lake end is perforated and carried around the circumference of the top of the intake; its shore end is connected with an air compressor used by the contractor for the Lake View tunnel (see below), and compressed air can at will be forced through this blow-pipe, and out of it over and across the intakes, churning up the water and lifting ice or any other solids that may adhere to them. The contrivance has already been tested while moderate quantities of ice threatened to choke the intakes, and

has been found a perfect success, and it is hoped that it will be efficient during the severest cold and thus assure to Lake View station an uninterrupted supply of water and save the city many a dollar for diver's pay and tug hire.

The old two-mile intake crib off the North Side pumping station is in good order ; but a great improvement might be made in the surrounding breakwater by filling up the gap, now left on the west side, with rip-rap held in place by piles, and by relying for the water supply on percolation.

The advisability of replacing the old light tower by a steel structure, straddling the well, cannot be too strongly urged ; the present structure, being of brick and placed on a corner of the crib, not only sways very heavily and imperils life and limb of the occupants of the crib in storm, but also injures the vitality of the crib by the one-sided strain it produces.

The ports of the shore inlet crib are very apt to become choked with the concrete with which the space between the body of the crib and an outer pile protection was filled, and which is fast disintegrating, but it will not be necessary to repair this crib, because it is shortly to be abandoned in favor of a new intake 3,000 feet farther out. (See North Shore Inlet Extension, page 18.)

The submerged crib off Sixty-eighth street works, at the end of the six-foot tunnel 5,000 feet long, has never caused any trouble, but it is plain that it must soon be abandoned, and that an extension of the tunnel for at least another 5,000 feet and a new intake at least two miles out will be required, on account of the steady spread of sewage pollution, from the shore outward, through increase of sewage outfalls into the lake direct and into Calumet river, the mouth of which is only about three (3) miles distant in a bee line from the present crib.

A prominent feature in water works affairs during the past year has been the extraordinary activity in the division of water pipe extension. A total of 129 miles was added to the system, an annual increase about two and one-half times as large as that which obtained within the limits of the old city during the year of annexation, 1889, and very nearly equaling the aggregate of annual increases in the old city during the four (4) years, 1885-6, 7 and 8, preceding the year of annexation.

The bulk of the contingent expense has been undergone on behalf of the annexed districts, and by far the greater share of the benefit will accrue to them.

Pressure tests at hydrants revealed the fact that the main supply pipes on Sixty-eighth street and Sixty-seventh street, connecting the Sixty-eighth street works with the distribution pipe system in the old towns of Hyde Park and Lake, were inadequate to such an extent that, to begin with, about forty per cent. of the head was lost in them on the first mile, east of Stony Island avenue, before they were ever tapped. By substituting for the smallest one of these three (3) main supply pipes (sixteen-inch from the

works to Woodlawn avenue, fourteen-inch thence to State street), a thirty-six-inch from the works to Cottage Grove avenue, a thirty-inch thence to State street, and a twenty-four-inch thence to Halsted street, by improving greatly the connections with the works and by making large size connections with the distribution pipe system at different points, the efficiency of the main supply lines has been more than doubled, and this will make itself fully felt during the coming hot season. The insufficiency of the water supply in northern Lake and Hyde Park during former hot seasons was attributable not only to inadequacy of the main supply lines, which has now been in large part remedied, but also to the arrangement of the distribution pipe system, which is faulty in that it contains too few east and west cross-cut feeders supporting the long reaches of four-inch and six-inch north and south pipe; and even these few are not large enough. In order to counteract this defect, which it is difficult to remedy, two new large supply mains, dependent on the works of the old city, have already been laid south as far as Thirty-ninth street, and are being continued as sixteen-inch pipes on Emerald avenue and Prairie avenue south for another mile or so.

These two new lines will serve the district to the east of the Stock Yards; to reach the district to the west of them it is intended to continue a thirty-six-inch main, which has been laid on LaSalle street as far south as Twenty-sixth street, on the best southwesterly route to the river at Thirty-fifth street, to cross the river by means of a tunnel for the reception of the thirty-six-inch pipe, to continue the latter as a twenty-four-inch west on Thirty-fifth street to Western avenue, and south on Western avenue to Thirty-ninth street, and to feed from this point in any desired direction.

The three trunk lines thus planned for the benefit of Lake and Hyde Park would depend chiefly and directly on the new works at Fourteenth street and Indiana avenue, which will be discussed later on, but they will also be connected indirectly with the old North and West Side and the Sixty-eighth street works.

Two (2) miles of thirty-six-inch and three (3) miles of twenty-four-inch pipe have been strung from the Lake View water works west on Sulzer street, ready to be laid and connected with the distribution pipe system, in anticipation of the large supply which the Lake View tunnel, now in process of construction, will yield to the districts of Lake View and Jefferson and of an increase in the engine capacity of the pumping station, which increase is rapidly becoming an imperative necessity because the station contains only one modern high duty engine of large capacity (12,000,000 gallons per day) and would not be able to supply its dependencies in case this engine should be disabled.

Attention is invited to Exhibit "F," the report of the Superintendent of Water Pipe Extension, to Exhibit "G," the report of the Superintendent of Meters, and to Plate III, the plan of the water pipe system.

The new six-foot water tunnel at the Sulzer street (Lake View) water works had advanced to a distance of 3,730 feet from the shore shaft at the end of the year. A contract was entered into during the year for an extension of the work to a distance of 10,000 feet from shore, because of the apprehension that an intake placed at the distance of 5,000 feet from shore, as originally contemplated, would very soon be exposed to pollution by sewage from Evanston and the northern lake shore residence districts of the city itself. A great deal of rock has been encountered on the present grade of the tunnel, almost doubling the cost and greatly retarding progress; but borings made at a distance of 4,700 feet from shore have demonstrated that the rock rises towards that point and is overlaid by a stratum unfit for tunneling, and that, therefore, an escape from the rock by raising the grade would not be feasible; there is, therefore, nothing for it but to continue on the present grade. The contractors are placing, in the meanwhile, a modern pneumatic rock-drill plant, from the operation of which a great increase in the rate of progress is expected. When the season opens borings will be made farther ahead in order to ascertain whether by a change in grade or alignment rock may be avoided in future. The contract term set for completion of the 10,000 feet of tunnel and the intake crib 10,000 feet from shore is July 1, 1892. For details I refer to Exhibit "H," report of the engineer in charge.

Progress in the new four-mile tunnel off Twelfth street, with its appurtenances, has been disappointing to a certain extent. The beginning of the year 1890 found the land tunnel system finished entirely, the two six-foot branches of lake tunnel carried to a distance of about 1,500 feet beyond the breakwater, or about 3,500 feet from shore, the intermediate crib set and the intermediate shaft sunk to a depth of eighty-three and one-half feet below datum, the four-mile crib set and its shell about half filled with concrete. The status of the work on January 1, 1891, is shown on Plate 1. During the year the two branches of the lake tunnel have been pushed out about 5,500 feet farther, or to a distance of about 9,000 feet from shore; the intermediate shaft, after enormous difficulties, has been sunk to its proper depth of about ninety-seven feet below city datum, and a small amount of tunneling has been done from it landwards and lakewards; the four-mile crib has been entirely finished up to the elevation of sixteen and one-half feet above city datum, and the four-mile intake shaft has been, without any difficulty, sunk to its proper depth of a little more than ninety-seven feet below city datum, and at the end of the year everything was in readiness for tunneling toward the intermediate crib. Tunneling from the intermediate shaft entirely ceased on November 1, the contractor deciding to employ compressed air to do battle against frequent and powerful eruptions of quicksand and gas, which made work at that point very slow, costly and dangerous. At the present writing (middle of February, 1891), nothing has been done towards the

establishment of a compressed air plant at the intermediate shaft, but such a plant is being introduced into one of the shore headings, work on both of which has been stopped for this purpose, and negotiations between the city authorities and the contractor are pending which contemplate that the latter, for a consideration, turn over the intermediate crib (which is his property by the contract) to the city to be used as a temporary intake as soon as tunnel connection shall have been made, and that in the meanwhile he push all headings between that crib and the shore by means of compressed air. The consummation of such an arrangement would, as soon as the compressed air proves a success, be followed by a resumption of the single eight-foot branch throughout; several hundred feet of eight-foot tunnel has been built shoreward from the four-mile crib, too, by this time (middle of February, 1891). A connection between shore and the intermediate shaft *might* be made about August 1, 1891, if compressed air were in *successful* operation in both headings by April 1, and a progress of $4,000 \div 2 \times 4 \times 26 = 19$ feet per day per heading could be made. The intermediate crib and shaft would then have to be fitted with ports, gates, etc., for service as intakes, and the breakwater and shore shafts and all of the tunnel reaches would have to be put into condition for carrying water, which would occupy about two months more, so that the most sanguine expectations would not set an earlier date than October 1, 1891, for sending water from the intermediate crib to the Harrison and Fourteenth street stations.

These considerations have led to the adoption of a plan which has been alluded to on page six, and which is now (middle of February, 1891,) in the first stages of execution. The shore inlet opposite the North Side pumping station is now distant only 900 feet from the shore line, which has been pushed out lately by means of piling and filling, and the quality of water obtained there is such that only very little of it may be mixed with the pure supply coming from the two-mile crib without injuriously affecting the latter; and, therefore, only a very small proportion of the capacity of the shore inlet tunnel (seven feet in diameter), can be utilized. Work has now begun on a contract for an extension of this seven-foot tunnel for about 3,000 feet, to the northwesterly extremity of the U. S. Exterior Breakwater, near which a new intake will be constructed at a distance of about 4,500 feet from shore and under conditions quite favorable to purity of water. When that intake is in operation, which must be, according to the terms of the contract, on or before June 20, 1891, the full capacity of the extended seven-foot shore inlet can be utilized, and the three tunnels combined will yield, in addition to the certainty of an ample supply for all the engines now being operated at the North Side, West Side and Central stations, a sufficient quantity to operate the second engine at the Central station, and one of the three engines at the South Side station.

As related above, one out of the two engines at the Central pumping station has been in operation since July 14, 1890. The city has not yet been put into possession of a strip of land, 10 feet wide, on the west line of the lot, which strip is required to completely finish the boiler house and coal shed; by a slight change in the plan, however, it has become feasible to set the west battery of boilers which is now in readiness for action. With the exception of the west ends of the boiler room and coal shed, which are temporarily closed by wooden partitions, the building has been finished, and its interior has been fitted up with regard to economy, convenience and neat and pleasing appearance. The boilers all have the "Murphy patent smokeless furnace" attachments.

The roof trusses over the engine and boiler rooms of the South Side station, at the corner of Fourteenth street and Indiana avenue, are all in place and the roofing is being put on. The coal shed is finished. A great deal of work is being done on the lower or water ends of two out of the three Allis vertical condensing triple expansion engines, each of a capacity of 15,000,000 gallons per twenty-four hours with two-thirds ($\frac{2}{3}$) of the number of boilers in use, and of 18,000,000 gallons with the full number of boilers in use, to be erected at this station. The Edward P. Allis Co have been instructed to have one of the engines ready for service in connection with the water supply by June 20 (the term of completion of the North Shore inlet extension), the second engine by August 15, and the third as soon thereafter as possible. For details in regard to the four-mile tunnel and the two new pumping stations I refer to Exhibits "J" and "K," the reports of the Engineer and the Architect, respectively, in charge.

Besides the grounds north of Fourteenth street and east of the alley between Michigan and Indiana avenues, on which the pumping station stands, the city owns the contiguous property, consisting of two twenty-five-foot lots at the southeast corner Fourteenth street and Michigan avenue, two twenty-five-foot lots at southwest corner Fourteenth street and Indiana avenue, and one twenty-five-foot lot at northeast corner Fourteenth street and Michigan avenue. It was at first intended that the front wall of the station should be placed on the old center line of Fourteenth street, and that the four twenty-five-foot lots on the south should be used to widen Fourteenth street between Michigan and Indiana avenues to seventy-five feet, while the twenty-five-foot lot north of Fourteenth street and between Michigan avenue and the alley would receive a stand pipe tower. But, for reasons of economy, the plans were changed so that now the front of the station stands fifteen feet farther north and encroaches only ten feet on old Fourteenth street, while the South Division electric light station has been placed on the two twenty-five-foot lots just opposite, thus leaving a width of forty feet to Fourteenth street at this point. Stand pipe and tower have been dispensed with and the old buildings on the other three twenty-five-foot lots north and

south of Fourteenth street, between Michigan avenue and the alley, have been repaired and let. The saving thus effected amounts to about \$100,000; of this sum \$65,000 is for real estate utilized or convertible, \$10,000 the reduction in cost of pumping station, \$25,000 for stand pipe and tower left out.

An addition to the Sixty-eighth street pumping works, consisting of two horizontal engines of a capacity of 12,000,000 gallons each, with the necessary boilers and buildings, is being planned. These additions would not be needed so soon, were it not for the World's Columbian Exposition, which will require a supply of 24,000,000 gallons per day during the summer of 1893 and considerable quantities during the preceding period of construction. Said additions will be paid for by a loan without interest made by the Exposition company to the city, on the voluntary offer of the former, the loan to be repaid by the city after the close of the Exposition, and the Exposition company to pay for the water actually used.

MAIN DRAINAGE.

During the year the Canal and Fullerton avenue pumping stations have performed well their tasks of cleansing that receptacle of most of Chicago's sewage, the Chicago river.

During all of January and the greater part of February the machinery at the Canal pumping works was at a standstill, the inlet basin connecting the Chicago river with the station having become filled with sediment to such an extent as to impede seriously the flow into the suction channels of the centrifugal pumps, in consequence of which a thorough cleansing of the inlet basin became a necessity.

In order to do this work well a coffer-dam was built across the mouth of the inlet basin; the latter was pumped dry and the sediment which was of a very tough character was removed by hand. For details I refer to Exhibit "O," the report of the engineer in charge of river and harbor. Fortunately there was no rainfall to speak of while the pumps were idle, and no outpour of the river into the lake took place during this dangerous period. The good results of the thorough cleansing of the basin were felt throughout the year in increased reliability and efficiency of the works. Both river and canal men agree that the past year has witnessed an extraordinary abatement of the nuisance of the foul odor arising from decomposing sewage. The canal has been kept bank full all through the season, and such was the satisfaction felt by the Canal Commissioners with regard to existing conditions that they positively refused permission to the city to add to the flow of the canal either by increasing the capacity of the existing works or by erecting additional works below, although plans for such increase had been elaborated in detail, and an appropriation of \$150,000 had been made to carry them out.

Considerable expense is caused, and charged to the works, by the necessity of keeping the screens across the mouth of the inlet clean. The steady and strong current toward the works attracts all floating matter, especially driftwood; this accumulates in large masses on the surface in front of the screens, and if not removed in time, tends to make the velocity at the bottom of the screens excessive and scour-producing. The stench arising from the burning of the refuse in the open air and the inconvenience of hauling it to the station to be burned under the boilers led to the erection of a crematory with a tall smoke-stack. Numbers of dead animals are found in the rubbish; once the carcass of a horse which, it was ascertained afterward, had been thrown into the North Branch, near Fullerton avenue, had to be dragged out, cut up and burned in front of the Canal pumping station.

For details of operation I refer to Exhibit "L," the report of the engineer in charge of the station.

The speed of the machinery at the Fullerton avenue pumping works was reduced somewhat while the Canal pumping works were at a standstill; and the average performance of the former during the year 1890 has been a little below that exhibited during 1889. Considerable repairs will be needed for these works during the coming year, as shown in Exhibit "M," the report of the engineer in charge of the Fullerton avenue pumping works.

From measurements of flow in the canal a "discharge curve" has been derived giving the discharges corresponding to different stages of water. This curve shows, roughly speaking, a discharge of 10,000 cubic feet per minute for every lineal foot of stage of water above city datum. The average stage of water in the canal during 1890 being 5.173 above datum, according to the report of the engineer in charge of the station, the average quantity pumped per minute would be about 52,000 cubic feet. This would cause a current of 0.5 feet per second or one-third of a mile per hour in a channel cross-section 125x14, the average of the South Branch near the works. The mean pumpage of the Fullerton avenue works being, according to the report of the engineer in charge of that station, about 12,000 cubic feet per minute, 40,000 cubic feet per minute must be supplied in dry weather by sewage and by the current from the lake. Assuming the dry weather flow of the sewers tributary to the Chicago river and its branches to be equal to the whole of the water supply for the population sewerage into them, which may be roughly taken at 1,000,000 of people, at 125 gallons per day per head, we should place the aggregate discharge of sewers into the river at $1,000,000 \times 125 \div 7.5 \times 24 \times 60 = 11,600$ cubic feet per minute, which would leave an average inflow from the lake of 28,400 cubic feet per minute. Such a volume of flow in a channel cross-section 200x14 feet (the average of the main river) would require a velocity of two inches per second, or about

one-ninth mile per hour. Fluctuations in the lake level and discharge of storm water into the river, by precipitation or melting snow and ice in the tributary areas, may quicken, retard, stop or reverse this inflow from the lake.

The Ogden dam may fairly be reckoned among the main drainage works, inasmuch as it regulates the connection of the Chicago river and its branches with that disturbing factor, the Desplaines river.

The dam proper, as well as its earth-work wings and the banks of the Desplaines river immediately above, are in tolerably good condition, and slight repairs will enable them to bear the strain which moderate spring or summer floods in the Desplaines river would put upon them. Unusual floods could not be controlled unless the dam were extended across the entire bottom, from the spoilbanks of the Illinois and Michigan canal on the south, to the rising grounds on the left bank of the Desplaines river on the north.

LOW LEVEL DRAINAGE DISTRICT.

The expense of operating the Woodlawn pumping station, which lifts the sewage of the low-level drainage district of Woodlawn (bounded by Fifty-ninth street and Sixty-seventh street and Stony Island and Cottage Grove avenues) into the Fifty-sixth street main sewer is provided for by special assessment. The station contains three Gordon-Maxwell sewage pumping engines of an aggregate capacity of 7,500,000 gallons per twenty-four hours. The average pumped per day was almost exactly 1,000,000 gallons; details are given in Exhibit "N," the report of the engineer in charge.

RIVER AND HARBOR.

The water in the lake and river has been lower during the year 1890 than for more than twenty years past; the annual mean of the lake level has been +0.63, or one-tenth of a foot lower than the annual mean of 1872, which latter year shows a transition from a long period of falling lake level to a long period of rising lake level. A similar turning point is presented by the year 1879, with an annual mean of +0.77, while the transitions in the opposite sense, that is from a long period of rising lake level to a long period of falling lake level, occurred in the years 1876 and 1886, with annual means of +2.56 and +2.64, respectively. We might, therefore, look for the return of the rising tendency in the year 1891.

This low water level, combined with the insufficiency of appropriations for dredging the river, affects very unfavorably the shipping interests, which demand a steady increase in depth of channel, owing to the very marked tendency towards larger lake craft as exhibited by the table page.

For instance, as to aggregate of arrivals and clearances, the years 1865 and 1890 are almost identical (20,170 and 20,138, respectively), while the

aggregate tonnage of the latter year is 10,116,051 or nearly two and one-half times that of 1865, which is 4,199,135. It follows from this that the average tonnage of lake vessels of to-day is about two and one-half times that of lake vessels of thirty-five years ago. An enormous increase in draught has been the consequence.

The insufficiency of the appropriation is also emphasized by the fact that the absolutely necessary dredging in and near the draws of new swing bridges had to be charged to the accounts of those structures.

A system of strict surveillance of private dock construction and repairs has been instituted in order to guard against new encroachments and the perpetuation of old encroachments, on the harbor area in favor of private parties.

The river telephone service continues to give general satisfaction.

Five collisions of vessels with swing bridges occurred; the damage done to the vessels were slight, and the Law Department determines in every case whether the city should pay for the repairs or not.

Very little wreckage work was done by the city.

For details I refer to Exhibits "O" to "Q," the reports of the engineer in charge of Dredging and Docking, of the Vessel Dispatcher and of the Harbor Master.

BRIDGE AND VIADUCT CONSTRUCTION.

The past year witnessed the introduction of two additional types into the bridge system of the city, the Howe truss bridge, and the combined lift and folding bridge, or the jack-knife bridge as it is tersely called, the action of each half of the bridge resembling that of a loosely hinged jack-knife as it is lowered from the vertical position, when the river is open and the street is closed, into the horizontal position, when the river is closed and the street is open.

If experience should show that this type of bridge can be operated safely and economically it would be greatly preferable in most cases to the swing bridge with its wide center pier in mid-channel, and its more general adoption would go far towards mitigating the very serious annoyances to river traffic, arising out of the crowding together of bridges which is necessitated by the great increase in street traffic.

The question of constructing subways instead of viaducts has come up repeatedly during the year in preparing plans and estimates for new projects. The two main obstacles to the adoption of the subway system seem to be the difficulties of sewerage and the aversion of the public to vault-like passages. This whole question, however, is swallowed up by the greater one: "Shall railroads elevate their tracks?" A great deal of light will be thrown

on this all-important subject by the forthcoming report on the exhaustive inquiry which is being carried on by a committee of experts under the auspices of the "Western Society of Engineers."

The surveys and the supervision of construction in this branch of the bureau are in the care of the engineers of the staff, while the plans and estimates are prepared by the draughtsmen of the same.

For details I refer to Exhibit "R," the report of the principal draughtsman, and the plans accompanying it.

BRIDGE AND VIADUCT REPAIRS.

This branch of the Bureau of Engineering is becoming more and more extensive and important. At present there are in use and operation sixty-one bridges of different sizes and types over the Chicago river and its branches, over the Calumet river and over the Illinois and Michigan canal. A full list of these structures, with short descriptions of each, will be found in the appendix. There are, besides, twenty-nine viaducts over railroad tracks.

The largest and most important pieces of work done by this branch were the insertion of a new set of eighty turn-table wheels of a superior quality of cast iron under Wells street bridge, and the thorough reconstruction of the Clybourn place bridge over the North Branch, Division street bridge over the North Branch, Main street bridge over the South Branch and the Canal street and Sixteenth street viaduct over the C., B. & Q. tracks. The most annoying form of deterioration is that caused in the iron members of the floor system of viaducts by the acid contained in the smoke from locomotives.

I refer to the report of the superintendent of this branch (Exhibit "S") for details.

DESIGNS, ESTIMATES AND SUPERINTENDENCE,

FURNISHED FOR OTHER DEPARTMENTS.

Exhibit "K," the report of the architect, contains a list of buildings erected or planned by this office for the Fire, Electric Light, Health and Police Departments, and for the management of the House of Correction.

It affords me pleasure to acknowledge, in conclusion, the faithful and efficient service rendered by the engineers and superintendents in charge of the various branches, by the engineers and other employes of the staff and especially by the First Assistant City Engineer, Mr. Bernhard Feind.

Very respectfully,

A. W. COOKE,
City Engineer.

EXHIBIT "A."

NORTH PUMPING WORKS.

CHICAGO, January 1st, 1891.

A. W. COOKE,

City Engineer.

SIR:—I herewith submit the Thirty-Eighth Annual Report of these Works for the year ending December 31st, 1890:

The total quantity of water pumped, with an allowance of five and two-thirds per cent. for loss of action in the old pumps, and three per cent. in the new pumps, is 20,131,101,780 gallons, being ten and six-tenths per cent. increase of the quantity pumped during the year 1889. The daily average was 55,153,700 gallons.

The greatest daily average pumped for a single month was in June, 61,596,830 gallons. The month of July approaches nearly to it; the amount was 60,702,680 gallons. The least daily average was during December, 51,409,900 gallons.

The largest days' pumping was on

| | |
|---------------------------|---------------------|
| Saturday, June 28th | 71,394,175 gallons. |
| Monday, June 30th | 70,282,085 gallons. |
| Tuesday, July 8th | 71,063,220 gallons. |

The least quantity pumped was on Sunday, October 12th—39,174,265 gallons.

The following tables, A and B, exhibit in detail the operations of these works for the year 1890:

TABLE A.
OPERATIONS OF OLD ENGINES AND BOILERS.

| MONTHS. 1880. | No. of Days Run. | Total Revolutions per Month. | Average No. of Revolutions per Day. | Total Gallons of Water Pumped per cent. for loss of Action. | Average No. of Gal- lons of Water Pumped per Day, less 5% per cent. for loss of Action. | Pounds of Coal Consumed per Month for Pump- ing. | Average No. of Pounds of Coal Consumed per Month for Pumping. | Pounds of Coal Con- sumed per Month for changing Boilers. | Total Pounds of Coal Consumed per Month. | Average head against Pumps in Feet. | DUTY. |
|--------------------------------|------------------|------------------------------|-------------------------------------|---|---|---|--|--|--|---|------------|
| January..... | 31 | 728,875 | 23,528 | 1,170,076,785 | 37,744,410 | 1,998,400 | 64,460 | 5,280 | 2,003,680 | 102.2 | 49,905,000 |
| February..... | 28 | 708,780 | 25,138 | 1,095,238,170 | 39,115,650 | 1,941,600 | 69,340 | ..... | 1,941,600 | 104.0 | 48,926,000 |
| March..... | 31 | 687,696 | 22,183 | 1,168,045,035 | 37,678,870 | 1,968,500 | 63,500 | 7,860 | 1,976,350 | 104.8 | 51,862,000 |
| April..... | 30 | 652,226 | 21,740 | 1,135,737,430 | 37,857,910 | 1,940,400 | 64,680 | 2,950 | 1,943,350 | 104.0 | 50,767,000 |
| May..... | 31 | 700,685 | 22,602 | 1,202,909,815 | 38,803,540 | 2,023,700 | 65,250 | 4,360 | 2,027,060 | 103.8 | 51,483,000 |
| June..... | 30 | 896,445 | 26,545 | 1,310,309,880 | 43,676,980 | 2,310,400 | 70,010 | 6,100 | 2,316,500 | 104.5 | 49,427,000 |
| July..... | 31 | 917,558 | 26,695 | 1,338,093,540 | 43,164,310 | 2,474,600 | 79,920 | 2,700 | 2,477,300 | 105.6 | 47,622,000 |
| August..... | 31 | 794,542 | 25,695 | 1,239,498,640 | 39,783,660 | 2,327,200 | 73,810 | 7,720 | 2,264,920 | 106.9 | 48,957,000 |
| September..... | 30 | 783,323 | 24,444 | 1,151,261,050 | 38,375,870 | 2,121,000 | 70,700 | 2,300 | 2,123,300 | 106.5 | 48,297,000 |
| October..... | 31 | 753,321 | 24,300 | 1,166,262,885 | 37,621,870 | 2,241,700 | 72,310 | 6,000 | 2,247,700 | 107.6 | 46,687,000 |
| November..... | 30 | 791,870 | 26,379 | 1,179,287,300 | 39,308,580 | 2,231,800 | 74,060 | 6,200 | 2,228,000 | 108.6 | 48,073,000 |
| December..... | 31 | 785,011 | 25,323 | 1,185,879,080 | 38,254,160 | 2,293,230 | 74,110 | 4,200 | 2,297,430 | 108.9 | 46,879,000 |
| TOTALS..... | 365 | 9,145,592 | ..... | 14,842,593,920 | ..... | 25,791,530 | ..... | 55,640 | 25,847,170 | ..... | ..... |
| General Average per Month..... | ..... | 762,183 | ..... | 1,195,216,160 | ..... | 2,149,290 | ..... | 4,640 | 2,153,930 | ..... | ..... |
| General Average per Day..... | ..... | ..... | 25,664 | ..... | 39,294,500 | ..... | 70,660 | 150 | 70,810 | 105.6 | 48,975,000 |

NOTE.—Coal for heating building and pumping out wells included in above amounts.

TABLE B.

OPERATIONS OF GASKILL ENGINES AND BOILERS.

| MONTHS. 1880. | No. of Days Run. | Total No. of Hours | | Average No. of Hours Run per Day. | Total Revolutions per Month. | Average No. of Revolutions per Day. | Total Gallons of Water Pumped per Month, less 8 per cent. for loss of Action. | Average Gallons of Water Pumped per Day, less 8 per cent. for loss of Action. | Pounds of Coal Consumed per Month for Pump- ing. | Average No. of Pounds of Coal Consumed per Day for Pumping. | Pounds of Coal Con- sumed per Month for Changing Boilers. | Electric Light. | | Total Pounds of Coal Consumed per Month. | Average Head against Pumps in Feet. | DUTY. |
|-------------------------------|------------------|--------------------|------------|---|---------------------------------|---|---|---|---|--|--|---|---|--|---|-------|
| | | H. M. | H. M. | | | | | | | | | Total No. of Hours run per Month. | Total Pounds of Coal Con- sumed per Month. | | | |
| January | 31 | 744:00 | 920,497 | 29,693 | 438,031,105 | 13,807,450 | 593,520 | 19,140 | 3,960 | 402:35 | 73,180 | 596,880 | 98.5 | 59,243,000 | | |
| February | 28 | 660:15 | 746,501 | 26,660 | 347,122,065 | 12,397,750 | 487,160 | 17,400 | 3,960 | 393:00 | 62,140 | 490,520 | 98.1 | 58,907,000 | | |
| March | 31 | 744:00 | 1,063,277 | 34,460 | 496,743,805 | 16,024,150 | 609,240 | 19,650 | 2,800 | 387:20 | 61,260 | 609,240 | 104.3 | 70,924,000 | | |
| April | 30 | 720:00 | 1,036,499 | 34,216 | 477,322,035 | 15,910,730 | 577,020 | 19,230 | 2,800 | 332:05 | 52,480 | 579,820 | 104.4 | 71,959,000 | | |
| May | 31 | 744:00 | 1,081,969 | 34,902 | 503,115,585 | 16,229,530 | 569,330 | 18,960 | 2,160 | 309:50 | 48,970 | 569,330 | 104.6 | 76,353,000 | | |
| June | 30 | 720:00 | 1,166,119 | 38,537 | 537,595,335 | 17,919,840 | 595,310 | 19,840 | 2,160 | 268:05 | 42,290 | 597,470 | 104.1 | 78,402,000 | | |
| July | 31 | 744:00 | 1,169,225 | 37,717 | 543,689,625 | 17,583,370 | 634,260 | 20,460 | 2,700 | 282:20 | 44,640 | 636,960 | 103.9 | 74,636,000 | | |
| August | 31 | 744:00 | 1,094,876 | 35,318 | 509,117,340 | 16,423,140 | 588,900 | 18,990 | 2,700 | 328:50 | 50,400 | 588,900 | 103.9 | 74,913,000 | | |
| September | 30 | 720:00 | 1,017,169 | 33,905 | 472,983,585 | 15,766,120 | 568,540 | 18,950 | 2,700 | 350:45 | 55,480 | 568,540 | 103.6 | 72,082,000 | | |
| October | 31 | 744:00 | 1,043,216 | 33,813 | 487,420,440 | 15,723,240 | 598,790 | 19,150 | 2,700 | 405:40 | 64,110 | 596,490 | 104.9 | 71,517,000 | | |
| November | 30 | 720:00 | 1,026,953 | 34,232 | 477,533,145 | 15,917,770 | 577,790 | 19,260 | 2,700 | 421:15 | 66,610 | 577,790 | 107.7 | 74,236,000 | | |
| December | 31 | 744:00 | 1,092,103 | 35,229 | 507,827,895 | 16,381,540 | 616,580 | 19,890 | 3,800 | 466:10 | 73,720 | 619,880 | 108.9 | 74,801,000 | | |
| TOTALS | 365 | 8,748:15 | 12,448,404 | ..... | 5,788,507,860 | ..... | 7,011,440 | ..... | 20,380 | 4,407:55 | 695,260 | 7,031,820 | ..... | ..... |  |  |
| Gen'l Average per Month | ... | 729:01 | 1,037,985 | ..... | 482,375,650 | ..... | 584,290 | ..... | 1,700 | 367:20 | 57,940 | 585,990 | ..... | ..... |  |  |
| Gen'l Average per Day | ... | 23:58 | ..... | ..... | ..... | ..... | ..... | 19,210 | 50 | 12:05 | 1,910 | 19,260 | 104.0 | 71,607,000 | | |

The following, Table C, shows the total quantity pumped per month by all of the engines together, and the daily average:

TABLE C.

| MONTHS OF 1890. | Total No. of Gallons of Water Pumped per Month. | Average No. of Gallons of Water Pumped per Day. |
|-----------------------|---|---|
| January | 1,598,107,890 | 51,551,860 |
| February | 1,442,861,135 | 51,512,900 |
| March | 1,664,798,840 | 53,708,080 |
| April | 1,613,059,465 | 53,768,650 |
| May | 1,706,025,400 | 55,083,070 |
| June | 1,847,905,015 | 61,596,830 |
| July | 1,881,783,165 | 60,702,680 |
| August | 1,748,610,980 | 56,406,800 |
| September | 1,624,244,635 | 54,141,490 |
| October | 1,653,682,895 | 53,844,610 |
| November | 1,656,820,445 | 55,227,350 |
| December | 1,693,706,975 | 54,635,710 |
| TOTALS | 20,131,101,780 | ..... |
| GENERAL AVERAGE ..... | ..... | 55,158,700 |

The following, Table D, will show the total quantity pumped and the time run by the several engines respectively:

TABLE D.

| Engines Designated as | No. of Days Run. | Total No. of Hours Run. | Average No. of Hrs run per day. | Total Revolutions. | Total Gallons of Water Pumped. | Average No. of Gallons of Water Pumped per day. |
|-----------------------|------------------|-------------------------|---------------------------------|--------------------|--------------------------------|---|
| " 1853." | 208 | H. M. 4,680:05 | H. M. 8:04 | 1,047,556 | 523,778,000 | 2,518,160 |
| " 1857." | 43 | 484:50 | 10:05 | 285,168 | 219,579,860 | 5,106,500 |
| " 1867." | 336 | 4,601:30 | 13:41 | 3,115,140 | 3,052,837,200 | 9,085,820 |
| " 1872." | 365 | 8,698:55 | 23:50 | 4,697,728 | 10,546,899,360 | 28,894,240 |
| Gaskill, No. 1. | 354 | 7,262:30 | 20:31 | 6,247,006 | 2,904,857,790 | 8,205,810 |
| Gaskill, No. 2. | 353 | 7,229:15 | 20:29 | 6,201,898 | 2,883,650,070 | 8,140,650 |
| TOTALS ..... | ..... | 29,907:05 | ..... | 21,593,996 | 20,131,101,780 | ..... |

TABLE G.

RATE OF PUMPING FOR EACH HOUR OF THE DAY AND MONTH FOR 1880.

| Hour. | January. | February. | March. | April. | May. | June. | July. | August. | Sept. | October. | Nov. | Dec. | For the year 1880. |
|---------------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|-------------|-------------|------------|--------------------|
| FROM | | | | | | | | | | | | | |
| 11 to 12 P. M. | 39,433,480 | 37,978,480 | 39,468,720 | 37,210,960 | 38,343,120 | 45,024,240 | 41,918,400 | 38,535,360 | 36,644,080 | 36,687,600 | 37,606,800 | 38,934,240 | 39,006,000 |
| 12 P. M. to 1 A. M. | 39,612,960 | 36,806,160 | 37,668,960 | 37,045,920 | 37,390,080 | 42,713,280 | 40,193,520 | 38,201,040 | 36,710,640 | 36,329,760 | 34,979,000 | 36,560,160 | 37,941,840 |
| 1 to 2 A. M. | 39,076,320 | 36,920,880 | 37,048,320 | 37,010,640 | 37,556,800 | 41,657,280 | 39,385,845 | 37,852,680 | 36,143,420 | 35,444,880 | 35,587,680 | 35,804,480 | 37,468,800 |
| 2 to 3 A. M. | 38,490,720 | 36,672,240 | 37,068,240 | 37,070,640 | 37,080,360 | 40,540,411 | 38,441,760 | 37,503,000 | 35,759,560 | 35,098,800 | 35,545,920 | 35,657,120 | 37,226,880 |
| 3 to 4 A. M. | 38,795,040 | 36,946,080 | 37,491,080 | 37,379,760 | 37,961,760 | 41,168,880 | 38,808,808 | 37,920,370 | 36,048,800 | 36,227,380 | 34,902,960 | 35,491,440 | 37,319,760 |
| 4 to 5 A. M. | 39,409,020 | 37,387,440 | 38,408,640 | 37,600,500 | 38,509,440 | 43,953,600 | 41,417,760 | 38,459,040 | 36,343,680 | 35,671,440 | 35,655,600 | 35,933,520 | 38,234,400 |
| 5 to 6 A. M. | 44,147,520 | 43,893,760 | 43,334,320 | 43,551,120 | 45,547,200 | 51,835,520 | 49,523,497 | 46,360,460 | 40,893,600 | 42,587,760 | 41,048,400 | 41,122,800 | 40,193,520 |
| 6 to 7 A. M. | 47,950,920 | 49,800,560 | 48,703,920 | 51,015,600 | 55,112,640 | 61,440,240 | 63,636,720 | 58,873,920 | 55,400,400 | 51,245,520 | 52,908,960 | 50,452,800 | 54,792,720 |
| 7 to 8 A. M. | 58,403,040 | 60,721,440 | 64,071,600 | 64,805,280 | 66,989,760 | 72,521,280 | 73,350,720 | 68,759,680 | 67,593,840 | 66,515,040 | 67,947,840 | 65,370,480 | 66,453,120 |
| 8 to 9 A. M. | 61,087,920 | 65,923,680 | 68,112,730 | 69,081,680 | 70,788,440 | 76,815,360 | 76,979,760 | 71,917,920 | 73,764,960 | 71,580,240 | 72,928,310 | 71,689,440 | 71,081,520 |
| 9 to 10 A. M. | 65,308,560 | 66,256,320 | 69,209,280 | 70,042,800 | 70,709,520 | 77,182,800 | 76,826,720 | 73,019,040 | 72,861,600 | 71,555,040 | 74,146,560 | 72,463,800 | 71,037,840 |
| 10 to 11 A. M. | 64,971,280 | 65,797,440 | 68,223,640 | 68,056,240 | 69,887,760 | 76,778,160 | 75,160,720 | 72,168,160 | 69,616,960 | 70,925,280 | 73,202,160 | 72,046,800 | 70,810,080 |
| 11 A. M. to 12 M. | 63,778,080 | 64,551,240 | 67,222,800 | 67,476,720 | 69,014,880 | 75,860,880 | 74,859,920 | 70,408,080 | 71,487,920 | 69,124,800 | 72,133,680 | 71,221,680 | 69,603,840 |
| 12 M. to 1 P. M. | 61,231,360 | 62,693,200 | 64,699,920 | 64,407,120 | 66,109,280 | 73,865,520 | 73,086,880 | 68,177,040 | 66,659,520 | 66,190,800 | 69,134,880 | 68,165,760 | 66,890,400 |
| 1 to 2 P. M. | 63,945,360 | 62,547,120 | 65,319,600 | 66,324,240 | 68,296,800 | 74,626,800 | 73,080,720 | 69,909,300 | 1,200,081,196 | 730,677,299 | 840,707,280 | 89,054,480 | 68,083,920 |
| 2 to 3 P. M. | 61,456,320 | 62,548,800 | 64,206,240 | 65,832,000 | 67,532,640 | 73,884,000 | 72,978,960 | 69,974,800 | 67,184,400 | 66,281,920 | 69,197,280 | 87,988,400 | 67,409,560 |
| 3 to 4 P. M. | 60,200,640 | 60,513,120 | 63,295,200 | 64,798,560 | 65,687,520 | 72,502,800 | 71,994,960 | 68,147,520 | 66,046,080 | 65,192,640 | 67,631,040 | 66,406,960 | 64,000,000 |
| 4 to 5 P. M. | 55,936,800 | 59,935,440 | 62,635,440 | 63,858,560 | 65,054,640 | 71,828,800 | 71,924,880 | 66,678,960 | 64,414,480 | 63,631,920 | 66,310,480 | 64,925,040 | 65,000,880 |
| 5 to 6 P. M. | 57,706,800 | 57,670,320 | 61,069,680 | 62,197,440 | 63,407,360 | 71,227,200 | 71,346,240 | 65,496,400 | 62,377,200 | 61,850,640 | 62,902,080 | 62,584,720 | 63,640,170 |
| 6 to 7 P. M. | 51,192,960 | 52,371,840 | 57,027,120 | 58,042,620 | 59,697,120 | 66,735,600 | 66,911,520 | 61,411,200 | 56,916,000 | 54,934,800 | 58,176,800 | 57,725,280 | 58,452,240 |
| 7 to 8 P. M. | 49,287,120 | 50,398,480 | 53,163,360 | 51,590,640 | 52,938,480 | 63,914,880 | 63,474,720 | 56,476,080 | 51,650,880 | 50,927,600 | 55,137,840 | 54,657,920 | 54,382,800 |
| 8 to 9 P. M. | 46,419,840 | 46,742,400 | 49,027,440 | 47,730,240 | 49,388,840 | 59,056,014 | 58,843,080 | 51,591,000 | 46,159,920 | 45,358,280 | 49,733,680 | 50,216,880 | 50,080,560 |
| 9 to 10 P. M. | 43,702,320 | 43,495,920 | 45,466,400 | 44,400,450 | 45,939,360 | 53,505,120 | 53,912,400 | 46,346,160 | 41,923,200 | 42,259,680 | 49,631,440 | 46,122,960 | 40,218,320 |
| 10 to 11 P. M. | 41,710,080 | 39,282,240 | 41,836,080 | 41,693,720 | 41,247,600 | 48,957,840 | 47,881,520 | 41,435,520 | 37,542,960 | 37,772,400 | 40,711,920 | 41,413,200 | 41,588,120 |
| Monthly Average | 51,551,860 | 51,512,900 | 53,703,030 | 53,768,650 | 55,033,070 | 61,596,890 | 60,702,680 | 56,406,800 | 54,141,400 | 53,844,610 | 55,237,850 | 54,635,710 | 55,153,700 |

TABLE H.

AVERAGE HEAD AGAINST PUMPS OF OLD ENGINES FOR EACH MONTH AND HOUR OF THE DAY.

| MONTHS. 1880. | From 11 P. M. to 12 P. M. | From 12 P. M. to 1 A. M. | From 1 A. M. to 2 A. M. | From 2 A. M. to 3 A. M. | From 3 A. M. to 4 A. M. | From 4 A. M. to 5 A. M. | From 5 A. M. to 6 A. M. | From 6 A. M. to 7 A. M. | From 7 A. M. to 8 A. M. | From 8 A. M. to 9 A. M. | From 9 A. M. to 10 A. M. | From 10 A. M. to 11 A. M. | From 11 A. M. to 12 M. | From 12 M. to 1 P. M. | From 1 P. M. to 2 P. M. | From 2 P. M. to 3 P. M. | From 3 P. M. to 4 P. M. | From 4 P. M. to 5 P. M. | From 5 P. M. to 6 P. M. | From 6 P. M. to 7 P. M. | From 7 P. M. to 8 P. M. | From 8 P. M. to 9 P. M. | From 9 P. M. to 10 P. M. | From 10 P. M. to 11 P. M. | General daily average per month. |
|--------------------------------------|---------------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|---------------------------|------------------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|---------------------------|----------------------------------|
| January..... | 100.7 | 100.0 | 100.3 | 100.7 | 101.3 | 101.2 | 103.7 | 104.9 | 102.9 | 102.0 | 102.1 | 101.3 | 102.1 | 103.1 | 102.4 | 103.4 | 103.2 | 102.9 | 103.6 | 101.2 | 102.6 | 102.1 | 102.0 | 101.9 | 102.2 |
| February..... | 100.5 | 100.7 | 100.6 | 100.9 | 102.1 | 105.7 | 108.0 | 103.8 | 104.1 | 104.3 | 104.4 | 105.1 | 105.1 | 105.1 | 104.7 | 105.9 | 108.0 | 105.7 | 105.6 | 105.4 | 104.7 | 104.5 | 102.2 | 103.4 | 104.0 |
| March..... | 102.8 | 102.8 | 103.2 | 103.6 | 103.9 | 103.8 | 101.7 | 108.4 | 105.7 | 104.2 | 104.4 | 104.6 | 105.2 | 105.2 | 105.8 | 107.0 | 105.7 | 108.5 | 106.9 | 108.1 | 103.2 | 103.7 | 104.5 | 104.0 | 104.8 |
| April..... | 103.5 | 103.2 | 103.9 | 102.8 | 102.7 | 102.8 | 103.4 | 106.8 | 103.9 | 103.8 | 103.9 | 104.0 | 104.9 | 105.6 | 105.3 | 105.7 | 105.7 | 105.7 | 106.5 | 105.8 | 101.2 | 102.5 | 102.3 | 102.5 | 104.0 |
| May..... | 102.8 | 101.9 | 101.3 | 101.7 | 101.5 | 102.1 | 105.0 | 104.2 | 104.1 | 105.2 | 104.0 | 104.5 | 105.1 | 105.1 | 105.1 | 105.1 | 105.7 | 105.2 | 105.7 | 105.7 | 100.6 | 101.8 | 101.0 | 100.5 | 103.8 |
| June..... | 103.0 | 101.0 | 102.8 | 103.4 | 103.5 | 103.6 | 105.9 | 106.6 | 105.4 | 105.1 | 105.0 | 105.4 | 105.7 | 105.4 | 105.8 | 105.6 | 103.3 | 105.6 | 104.3 | 105.7 | 108.2 | 105.3 | 105.1 | 105.3 | 104.5 |
| July..... | 103.3 | 100.2 | 102.9 | 103.6 | 103.6 | 103.8 | 106.3 | 107.2 | 106.2 | 106.1 | 105.9 | 106.1 | 108.5 | 107.1 | 108.6 | 106.3 | 107.0 | 106.3 | 104.0 | 106.2 | 106.7 | 105.6 | 105.5 | 103.5 | 105.6 |
| August..... | 103.7 | 103.8 | 105.1 | 104.7 | 105.0 | 104.7 | 106.8 | 108.4 | 106.8 | 107.3 | 107.3 | 107.5 | 108.2 | 107.8 | 108.0 | 108.6 | 109.1 | 108.6 | 108.7 | 107.8 | 108.6 | 108.8 | 105.0 | 108.4 | 108.9 |
| September..... | 104.3 | 104.8 | 105.5 | 105.9 | 105.8 | 106.8 | 106.5 | 107.3 | 108.0 | 106.9 | 107.5 | 107.6 | 107.8 | 108.9 | 107.3 | 107.8 | 107.6 | 107.6 | 107.6 | 108.3 | 108.2 | 105.3 | 105.8 | 106.8 | 106.5 |
| October..... | 106.0 | 106.6 | 106.4 | 108.8 | 108.8 | 109.0 | 106.7 | 108.7 | 107.9 | 107.7 | 108.1 | 108.2 | 108.5 | 108.5 | 108.9 | 108.5 | 108.0 | 107.9 | 107.4 | 104.2 | 104.8 | 105.4 | 108.1 | 107.6 | |
| November..... | 107.5 | 109.0 | 109.4 | 109.5 | 109.8 | 110.0 | 108.5 | 108.9 | 109.1 | 108.3 | 108.7 | 108.8 | 109.2 | 109.6 | 109.9 | 110.2 | 109.7 | 109.3 | 108.9 | 108.3 | 108.0 | 105.7 | 105.1 | 108.7 | 108.6 |
| December..... | 106.1 | 107.5 | 108.8 | 108.9 | 109.8 | 108.7 | 109.0 | 110.1 | 108.7 | 108.2 | 108.7 | 108.5 | 109.7 | 110.1 | 110.6 | 110.6 | 110.6 | 110.3 | 110.1 | 110.7 | 109.5 | 107.7 | 105.6 | 107.9 | 108.9 |
| General hourly average for the year. | 103.7 | 103.4 | 104.4 | 104.5 | 104.7 | 105.0 | 106.0 | 107.5 | 106.0 | 105.8 | 105.8 | 105.9 | 106.5 | 106.7 | 106.6 | 107.0 | 107.1 | 106.8 | 106.6 | 106.6 | 106.2 | 104.6 | 104.1 | 104.5 | 105.6 |

TABLE I.

| JUNE 28th, 1890. | | |
|--------------------------|----------------|------------------|
| HOURS. | AMOUNT PUMPED. | RATE OF PUMPING. |
| FROM | | |
| 11 P. M. to 12 P. M..... | 1,982,155 | 47,571,720 |
| 12 P. M. to 1 A. M..... | 2,078,550 | 49,885,200 |
| 1 A. M. to 2 A. M..... | 2,001,475 | 48,085,300 |
| 2 A. M. to 3 A. M..... | 1,971,760 | 47,322,240 |
| 3 A. M. to 4 A. M..... | 1,966,535 | 47,196,840 |
| 4 A. M. to 5 A. M..... | 2,045,235 | 49,085,640 |
| 5 A. M. to 6 A. M..... | 2,677,530 | 64,260,720 |
| 6 A. M. to 7 A. M..... | 2,879,655 | 69,111,650 |
| 7 A. M. to 8 A. M..... | 3,430,200 | 82,324,800 |
| 8 A. M. to 9 A. M..... | 3,529,685 | 84,712,440 |
| 9 A. M. to 10 A. M..... | 3,617,905 | 86,829,720 |
| 10 A. M. to 11 A. M..... | 3,571,290 | 85,710,960 |
| 11 A. M. to 12 M..... | 3,639,210 | 87,241,040 |
| 12 M. to 1 P. M..... | 3,516,335 | 84,392,040 |
| 1 P. M. to 2 P. M..... | 3,438,245 | 82,517,880 |
| 2 P. M. to 3 P. M..... | 3,573,605 | 85,766,520 |
| 3 P. M. to 4 P. M..... | 3,585,325 | 86,047,800 |
| 4 P. M. to 5 P. M..... | 3,535,340 | 84,848,160 |
| 5 P. M. to 6 P. M..... | 3,490,270 | 83,766,480 |
| 6 P. M. to 7 P. M..... | 3,316,850 | 79,604,400 |
| 7 P. M. to 8 P. M..... | 3,227,480 | 77,459,520 |
| 8 P. M. to 9 P. M..... | 3,034,685 | 72,832,440 |
| 9 P. M. to 10 P. M..... | 2,731,735 | 65,561,640 |
| 10 P. M. to 11 P. M..... | 2,549,120 | 61,173,880 |
| Total and Average..... | 2,974,760 | 71,894,175 |

The quantity pumped for the past ten years is shown in Table J.

Table K shows the total quantity pumped at these works, the daily average quantity pumped and the cost of coal and pumping from 1858 to 1890.

TABLE J.
TABLE SHOWING QUANTITY OF WATER PUMPED AT THE "NORTH PUMPING WORKS" EACH MONTH
DURING PAST TEN YEARS.

| MONTH. | 1881 | 1882 | 1883 | 1884 | 1885 | 1886 | 1887 | 1888 | 1889 | 1890 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| January..... | 1,180,318,094 | 1,080,553,403 | 1,459,650,870 | 1,597,746,065 | 1,183,792,300 | 1,344,346,935 | 1,321,902,470 | 1,603,448,470 | 1,364,936,180 | 1,598,107,890 |
| February..... | 1,071,244,080 | 981,359,947 | 1,387,274,940 | 1,400,064,060 | 1,172,952,080 | 1,249,745,645 | 1,127,305,160 | 1,370,406,635 | 1,355,254,710 | 1,442,361,135 |
| March | 1,084,122,691 | 1,126,205,744 | 1,300,238,480 | 1,461,838,615 | 1,179,418,925 | 1,328,064,370 | 1,154,084,820 | 1,368,157,505 | 1,418,450,885 | 1,664,793,840 |
| April..... | 1,005,401,898 | 1,010,929,508 | 1,208,918,680 | 1,243,150,060 | 1,062,368,455 | 1,295,609,455 | 1,137,447,860 | 1,225,147,970 | 1,380,738,440 | 1,613,069,465 |
| May..... | 962,315,027 | 1,148,043,237 | 1,226,970,205 | 1,352,183,420 | 1,044,409,125 | 1,207,402,595 | 1,308,409,635 | 1,186,391,250 | 1,520,442,270 | 1,706,025,460 |
| June..... | 1,067,238,288 | 1,231,069,204 | 1,279,606,075 | 1,394,394,220 | 1,095,438,595 | 1,446,240,195 | 1,496,428,815 | 1,457,790,605 | 1,519,228,195 | 1,847,906,015 |
| July..... | 1,272,257,588 | 1,303,469,202 | 1,414,407,680 | 1,460,897,800 | 1,207,702,805 | 1,519,238,835 | 1,757,869,275 | 1,558,222,635 | 1,691,459,865 | 1,881,783,165 |
| August..... | 1,339,158,896 | 1,314,724,931 | 1,435,128,930 | 1,231,432,525 | 1,222,961,195 | 1,477,798,060 | 1,679,969,875 | 1,532,188,780 | 1,707,338,115 | 1,748,610,980 |
| September..... | 1,236,847,152 | 1,300,657,799 | 1,307,348,100 | 1,228,234,905 | 1,170,082,295 | 1,385,820,065 | 1,616,224,620 | 1,444,852,760 | 1,595,119,540 | 1,624,244,635 |
| October..... | 1,344,345,991 | 1,230,715,910 | 1,294,425,870 | 1,147,362,310 | 1,208,596,170 | 1,365,692,860 | 1,670,441,265 | 1,377,400,000 | 1,569,889,590 | 1,663,682,835 |
| November..... | 1,227,120,714 | 1,155,586,563 | 1,630,954,540 | 1,042,210,965 | 1,101,196,590 | 1,202,828,595 | 1,483,870,000 | 1,442,096,425 | 1,483,465,785 | 1,606,820,445 |
| December..... | 998,525,362 | 1,283,878,346 | 1,432,341,210 | 986,175,820 | 1,335,616,400 | 1,418,089,045 | 1,398,848,180 | 1,469,566,495 | 1,602,332,430 | 1,693,706,975 |
| TOTALS..... | 13,758,940,879 | 14,150,193,884 | 16,365,263,090 | 15,405,650,785 | 14,004,733,925 | 16,238,854,625 | 17,153,450,865 | 17,075,668,580 | 18,198,651,005 | 20,181,101,790 |

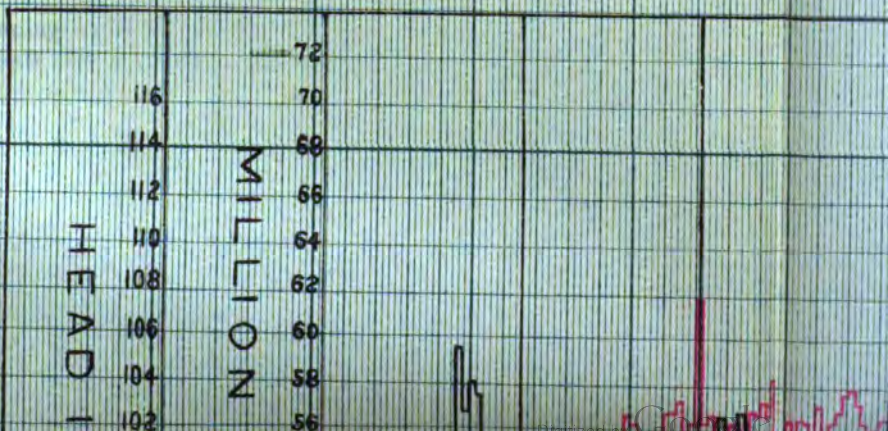
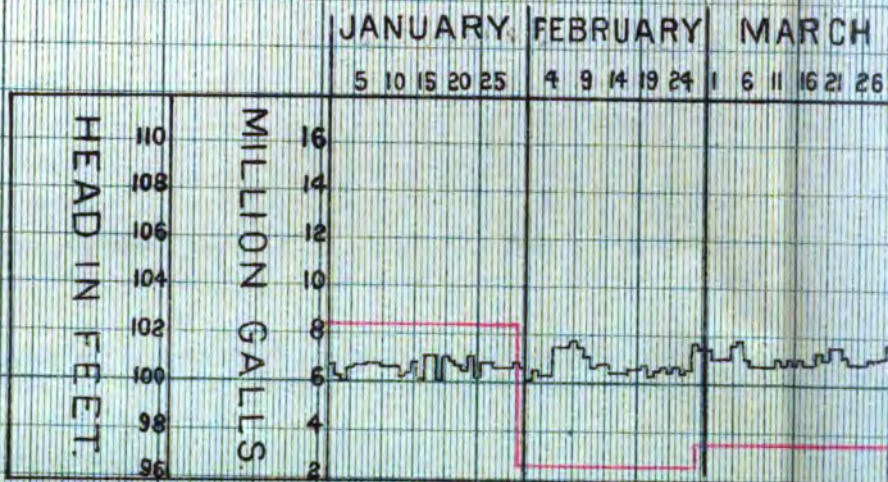
TABLE K.
OPERATIONS OF ENGINES AND BOILERS AND COST OF REPAIRS AND PUMPING, FROM 1858 TO 1890.

| YEAR | Total quantity of water pumped for the year. | Daily average quantity of water pumped. | Daily average pounds of coal consumed for pumping. | Head against pumps in feet. | TOTAL CAPACITY. | DUTY. | Cost of repairs and Boilers. | Cost of repairs Engines and Boilers. | Cost of repairs Engines and Boilers. | Cost of Coal per Ton. | Cost of Coal per Million Gals. of water. | Cost of pumping One Million Gals. of water. | REMARKS. |
|------|--|---|--|-----------------------------|-----------------|------------|------------------------------|--------------------------------------|--------------------------------------|-----------------------|--|---|--|
| 1858 | 1,091,865,459 | 3,003,376 | ..... | 90.00 | 20,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1859 | 1,415,147,910 | 3,877,119 | ..... | 90.00 | 20,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1860 | 1,716,786,552 | 4,690,674 | ..... | 90.00 | 20,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1861 | 1,767,154,859 | 4,841,620 | 12,480 | 90.00 | 20,000,000 | ..... | \$ 68.23 | \$0.0886 | \$3.84 | 8.53 | \$5.03 | \$7.7758 | ..... |
| 1862 | 2,217,279,739 | 6,074,739 | 15,060 | 90.00 | 20,000,000 | ..... | 470.83 | 2123 | 8.53 | 8.50 | 11.1386 | ..... | ..... |
| 1863 | 2,336,108,454 | 6,400,298 | 15,660 | 90.00 | 20,000,000 | 32,030,000 | 41.16 | 0175 | 6.53 | 9.94 | 12.97 | 16.6427 | ..... |
| 1864 | 2,523,339,218 | 6,913,259 | 18,000 | 90.00 | 20,000,000 | 33,565,000 | 984.65 | 3719 | 9.21 | 9.21 | 11.44 | 15.2454 | ..... |
| 1865 | 2,777,817,349 | 7,610,459 | 18,910 | 100.00 | 20,000,000 | 35,181,000 | 1,033.25 | 8719 | 8.51 | 10.10 | 14.0982 | 1.403 | ..... |
| 1866 | 3,168,766,609 | 8,681,593 | 20,610 | 100.00 | 20,000,000 | 38,240,000 | 804.52 | 2659 | 7.03 | 8.79 | 11.8662 | 1.186 | ..... |
| 1867 | 4,281,791,659 | 11,563,273 | 29,010 | 100.00 | 20,000,000 | 38,240,000 | 504.30 | 1194 | 7.60 | 9.26 | 12.4521 | 1.245 | New Engine started July 20. |
| 1868 | 5,374,624,576 | 14,724,999 | 35,870 | 100.00 | 85,000,000 | 34,236,000 | 2,286.91 | 4255 | 6.93 | 8.90 | 11.7110 | 1.171 | ..... |
| 1869 | 6,801,146,720 | 18,633,278 | 47,840 | 100.00 | 85,000,000 | 35,545,000 | 1,734.99 | 2552 | 7.49 | 8.75 | 11.3146 | 1.131 | ..... |
| 1870 | 7,944,684,840 | 21,766,260 | 51,070 | 100.00 | 85,000,000 | 35,545,000 | 1,034.25 | 1801 | 7.09 | 9.61 | 12.0305 | 1.203 | Buildings, etc., destroyed by fire Oct. 9. |
| 1871 | 8,423,890,966 | 23,464,877 | 55,800 | 100.00 | 85,000,000 | 35,071,000 | 899.56 | 1067 | 8.09 | 9.14 | 11.6449 | 1.164 | ..... |
| 1872 | 10,050,939,189 | 27,536,819 | 70,150 | 100.00 | 85,000,000 | 32,740,000 | 1,376.24 | 1369 | 7.18 | 9.61 | 12.8625 | 1.255 | New Engine started January 2. |
| 1873 | 11,722,819,032 | 32,117,312 | 79,560 | 105.00 | 74,000,000 | 35,350,000 | 1,743.61 | 1487 | 8.56 | 10.60 | 12.2628 | 1.108 | ..... |
| 1874 | 13,903,197,493 | 38,090,952 | 92,890 | 105.00 | 74,000,000 | 35,910,000 | 3,855.35 | 2773 | 8.27 | 10.08 | 12.2628 | 1.108 | 9 months only. |
| 1875 | 10,957,252,996 | 29,844,556 | 89,590 | 105.00 | 74,000,000 | 38,945,000 | 1,011.86 | 1470 | 7.92 | 8.91 | 10.8190 | 1.030 | ..... |
| 1876 | 14,525,858,798 | 39,668,138 | 85,820 | 110.00 | 74,000,000 | 38,955,000 | 2,470.80 | 17 | 7.15 | 7.73 | 9.5640 | 0.845 | ..... |
| 1877 | 17,958,977,636 | 32,764,323 | 61,700 | 110.00 | 74,000,000 | 53,174,000 | 2,734.99 | 3287 | 5.88 | 5.43 | 7.0664 | 0.645 | Screenings used part of the year. |
| 1878 | 11,145,370,232 | 30,535,261 | 58,730 | 106.00 | 74,000,000 | 45,963,000 | 1,801.42 | 1616 | 4.39 | 4.23 | 6.2424 | 0.598 | Screenings used part of the year. |
| 1879 | 11,153,102,981 | 30,556,446 | 54,560 | 102.08 | 74,000,000 | 47,643,000 | 4,710.74 | 4922 | 4.14 | 3.68 | 5.9880 | 0.586 | ..... |
| 1880 | 12,354,008,906 | 33,754,122 | 55,850 | 104.7 | 74,000,000 | 52,956,000 | 1,208.67 | 0978 | 4.88 | 3.98 | 5.6782 | 0.542 | ..... |
| 1881 | 13,765,940,879 | 37,695,728 | 65,030 | 105.78 | 74,000,000 | 51,290,000 | 2,200.07 | 16 | 6.18 | 5.32 | 7.1329 | 0.673 | ..... |
| 1882 | 14,150,193,884 | 38,767,654 | 69,490 | 105.38 | 74,000,000 | 49,080,000 | 696.68 | 0492 | 6.16 | 5.52 | 7.8406 | 0.696 | ..... |
| 1883 | 16,865,263,090 | 44,868,337 | 86,950 | 107.4 | 74,000,000 | 46,289,000 | 1,388.71 | 0904 | 5.78 | 5.59 | 7.2686 | 0.676 | ..... |
| 1884 | 15,405,650,785 | 42,091,942 | 81,390 | 107.2 | 74,000,000 | 46,382,000 | 4,002.81 | 2673 | 5.91 | 5.70 | 7.7107 | 0.719 | ..... |
| 1885 | 14,004,733,925 | 38,369,134 | 71,070 | 113.00 | 74,000,000 | 50,870,000 | 1,206.78 | 0862 | 6.58 | 5.17 | 7.1698 | 0.634 | ..... |
| 1886 | 16,236,854,625 | 44,490,012 | 80,620 | 108.8 | 74,000,000 | 50,070,000 | 2,063.56 | 1271 | 6.04 | 5.47 | 7.3807 | 0.674 | ..... |
| 1887 | 17,153,450,955 | 40,995,750 | 85,500 | 99.00 | 95,000,000 | 55,993,000 | 8,376.14 | 1969 | 5.99 | 4.89 | 7.5111 | 0.742 | New Engine started in June. |
| 1888 | 17,075,668,590 | 46,634,830 | 89,740 | 104.7 | 98,000,000 | 65,842,000 | 18,988.49 | 1,1120 | 5.98 | 4.47 | 8.0954 | 0.880 | ..... |
| 1889 | 18,195,651,035 | 49,806,320 | 76,120 | 105.7 | 98,000,000 | 63,626,000 | 5,000.91 | 2748 | 5.20 | 4.04 | 7.1031 | 0.672 | ..... |
| 1890 | 20,181,161,747 | 55,158,700 | 86,870 | 104.6 | 98,000,000 | 63,639,000 | 4,473.15 | 3332 | 4.74 | 3.87 | 6.7576 | 0.649 | ..... |

DIAGR

QUA

BLACK LINES DENOTE QUANTITY



The following, Table L, will show the number of hydrants and stop valves made at the machine shops during the year 1890 :

TABLE L.

| | On hand January 1, 1890. | Man'd in 1890. | On hand January 1, 1891. |
|---|--------------------------------|-------------------|--------------------------------|
| Single nozzle hydrants..... | 35 | 80 | None |
| Double two and one-half inch nozzle hydrants..... | 100 | 1,082 | 8 |
| Double four-inch nozzle hydrants..... | 1 | None. | None. |
| Four-inch stop valves..... | 4 | 75 | 5 |
| Six-inch stop valves..... | 8 | 468 | 16 |
| Eight-inch stop valves..... | 5 | 121 | None. |
| Twelve-inch stop valves..... | 2 | 43 | 13 |
| Sixteen-inch stop valves..... | 2 | 8 | 8 |
| Twenty-four inch stop valves..... | None. | 20 | 7 |

In addition to the foregoing, a number of hydrants and stop-valves have been repaired, and the usual amount of repairing has been done for the various departments of the city.

The total expenditure for labor and material on account of shop, including value of stock on hand January 1, 1890, is.....

\$68,868 34

Charged to the following accounts, viz :

| | |
|--|-----------|
| North pumping works..... | \$ 796 78 |
| New hydrants and stop valves..... | 53,358 48 |
| Repairs of hydrants..... | 922 67 |
| Lake crib..... | 30 62 |
| Repairs of stop valves..... | 95 86 |
| Pipe extension..... | 885 16 |
| City Engineer's office..... | 24 44 |
| Fullerton avenue pumping works..... | 115 77 |
| Bridge department (Wells street bridge)..... | 17 70 |
| Stable..... | 195 50 |
| Tappers' tools..... | 169 59 |

Street Department :—

| | | |
|---------------------------------|----------|-----------|
| Steam Rollers..... | \$508 68 | |
| Lamps | 62 50 | |
| Tools | 11 18 | |
| | <hr/> | \$ 582 36 |
| Meter department | | 3,163 97 |
| City hall building | | 49 65 |
| Central pumping station..... | | 18 28 |
| Gate chamber (old tunnels)..... | | 11 84 |
| Sewer department | | 5 58 |
| Repairs of fire cisterns | | 8 00 |
| Lake View water works | | 411 32 |
| Leak department..... | | 32 15 |

Lake View District :—

| | | |
|---------------------------|----------|-------|
| Pipe layers' tools..... | \$ 12 07 | |
| Sounding tools..... | 19 25 | |
| Repairs of hydrants | 4 50 | |
| | <hr/> | 35 82 |
| New lake tunnel..... | | 13 31 |

Hyde Park District :—

| | | |
|------------------------------|---------|--------|
| Water works..... | \$ 0 54 | |
| Pipe extension..... | 31 07 | |
| Repairs of stop valves | 29 44 | |
| Repairs of hydrants | 69 62 | |
| | <hr/> | 130 67 |
| Shore crib..... | | 291 12 |

Town of Lake District :—

| | | |
|---|--------|-------------|
| Hydrant wrenches..... | \$5 40 | |
| Repairs of stop valves | 4 08 | |
| Pipe extension | 5 63 | |
| | <hr/> | 15 11 |
| Extension of shore tunnel..... | | 7 01 |
| Washington Heights pumping station..... | | 11 89 |
| New tools and machinery..... | | 2,037 68 |
| Repairs of tools and machinery..... | | 432 07 |
| Repairs of engines and boilers..... | | 80 89 |
| Coal, gas, maintenance, etc..... | | 732 00 |
| On hand January 1, 1891..... | | 4,659 60 |
| | | <hr/> |
| | | \$69,342 89 |
| Less credit from Street Department for 1889.... | | 474 55 |
| | | <hr/> |
| | | \$68,868 34 |

| | |
|---|--------------------|
| Cost of tools previously reported..... | \$13,078 71 |
| Add new machinery and tools..... | 2,037 68 |
| Add for repairs of tools and machinery..... | 432 07 |
| Total | <u>\$15,548 46</u> |

There have been added two new lathes and one drill press during the year.

The shops were first started in 1862, in a small place fitted up in the coal shed in the rear of the water works buildings, and afterward a building erected where they now stand. In the fire of October 9, 1871, they were destroyed and rebuilt. Table M will show the hydrants and stop-valves manufactured in the shops since they were first started.

TABLE M.

HYDRANTS AND STOP VALVES MANUFACTURED AT WATER DEPARTMENT
SHOPS.

| YEARS. | Single 2½-inch Nozzle Hydrants. | Double 2½-inch Nozzle Hydrants. | Double 4-inch Nozzle Hydrants. | 4-inch Valves. | 6-inch Valves. | 8-inch Valves. | 12-inch Valves. | 16-inch Valves. | 24-inch Valves. | REMARKS. |
|--------|------------------------------------|------------------------------------|-----------------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|---|
| 1862 | 54 | ..... | ..... | 42 | 28 | 5 | 1 | ..... | ..... |  |
| 1863 | 131 | ..... | ..... | 49 | 80 | 5 | 2 | ..... | ..... |  |
| 1864 | 157 | ..... | ..... | 52 | 94 | 18 | 3 | ..... | ..... |  |
| 1865 | 214 | ..... | ..... | 48 | 17 | 7 | 2 | ..... | ..... |  |
| 1866 | 190 | ..... | ..... | 28 | 21 | 4 | 1 | ..... | ..... |  |
| 1867 | 207 | ..... | ..... | 31 | 36 | 12 | ..... | ..... | ..... |  |
| 1868 | 231 | ..... | ..... | 47 | 35 | 19 | ..... | 6 | ..... |  |
| 1869 | 292 | ..... | ..... | 37 | 36 | 27 | 11 | 4 | 8 | |
| 1870 | 385 | 3-inch Nozzle 8 | } | 124 | 245 | 120 | 15 | 6 | 8 | |
| 1871 | 57 | ..... |  | 150 | 114 | 24 | 3 | ..... | ..... | Buildings, Machinery and Record destroyed by fire. |
| 1872 | 188 | 137 | ..... | ..... | 112 | ..... | ..... | 2 | ..... | 2½-inch Double Nozzle Hydrants first made. |
| 1873 | 225 | 243 | ..... | 146 | 124 | 90 | 22 | 8 | 1 | |
| 1874 | 185 | 292 | ..... | 71 | 152 | 228 | 39 | 14 | 9 | |
| 1875 | 77 | 256 | ..... | 67 | 125 | 255 | 44 | 17 | 8 | |
| 1876 | 18 | 28 | 19 | 88 | 80 | 90 | 14 | 9 | 3 | 4-inch Double Nozzle Hydrants first made. |
| 1877 | 41 | 12 | 67 | 110 | 91 | 54 | 17 | 7 | ..... |  |
| 1878 | 22 | 1 | 135 | 88 | 100 | 52 | 6 | 5 | 1 | |
| 1879 | 31 | 8 | 114 | 63 | 121 | 69 | 30 | 3 | 1 | |
| 1880 | 31 | 30 | 130 | 47 | 113 | 66 | 11 | 6 | 2 | |
| 1881 | 40 | 134 | 67 | 72 | 157 | 50 | 10 | 1 | 2 | |
| 1882 | 49 | 219 | 42 | 75 | 171 | 71 | 8 | 4 | 5 | |
| 1883 | 98 | 242 | 15 | 98 | 146 | 48 | 7 | 4 | 1 | |
| 1884 | 77 | 333 | 1 | 101 | 152 | 57 | 16 | 10 | 3 | |
| 1885 | 78 | 361 | 11 | 60 | 130 | 53 | 17 | 9 | 7 | |
| 1886 | 110 | 238 | 10 | 49 | 169 | 66 | 21 | 3 | 5 | |
| 1887 | 100 | 391 | 4 | 53 | 203 | 79 | 24 | 14 | 2 | |
| 1888 | 146 | 607 | 6 | 65 | 232 | 134 | 23 | 2 | 1 | |
| 1889 | 129 | 577 | 5 | 57 | 231 | 89 | 22 | 6 | ..... |  |
| 1890 | 80 | 1082 | ..... | 75 | 468 | 121 | 43 | 8 | 20 | Machinery Doubled in May. |

ENGINES AND BOILERS.

The small double or "67" engine, after being changed back again a year ago, was tested on January 25th, proving very satisfactory. The speed of the engine was increased from eleven to fifteen revolutions, thus increasing its capacity.

The cost of compounding and changing back this engine was as follows:

| | |
|--------------------------|-------------------|
| Compounding, 1888..... | \$4,292 29 |
| Changing back, 1889..... | 2,841 21 |
| Changing back, 1890..... | 858 27 |
| Total..... | <u>\$7,991 77</u> |

The Gaskill engines were thoroughly overhauled and repaired in January last, and are being overhauled again at this date.

The "72" engine has been running continually, and as soon as it can be spared should have a thorough overhauling.

SHORE CRIB.

During last August I found the channels at the shore crib completely blocked up with the concrete of which it is built, and, although they were cleaned out, are again blocked up.

The working force of engineers, etc., remain about the same as at last report.

Respectfully submitted,

D. H. WELCH,

Engineer in charge North Pumping Works.

EXHIBIT "B."

WEST PUMPING WORKS.

CHICAGO, January 6, 1891.

A. W. COOKE, Esq.,

City Engineer.

DEAR SIR:—The Fifteenth Annual Report of the operation of these works, being for the year ending December 31, 1890, is herewith submitted :

ENGINES AND PUMPS.

During the past year the four (4) pumping engines, at this station, were in continual operation up to October 19th, excepting the usual stoppage of one engine at night for about four or five hours, when the pressure becomes too great. On that date it became necessary to shut down Engine "50," and up to December 27th, or a period of sixty-nine days, but three (3) engines were in operation. During this interval each one of the four (4) engines was stopped and given much needed repairs. The twenty-four-inch suction valve, on the pump of Engine "50" was found to be damaged, due entirely to natural causes. It was thought best to replace it with a nest of valves sixty-six in number, and $5\frac{1}{8}$ inches area each. Nothing else of importance was done outside of the regular work incident to overhauling.

BOILERS.

During the year five (5) new mud drums were placed on the old or 1876 boilers, the old ones being entirely worn out. Aside from this about the usual amount of repairs was needed to keep the boilers in good condition.

OPERATIONS OF ENGINES AND BOILERS AT WEST PUMPING WORKS IN 1890.

| MONTHS. 1890. | No. of Days Run. | No. of Hours Run per Month. | Average No. of Hours Run per Day. | Total Revolutions Made per Month. | Average No. of Revolutions per Day. | Total No. of Gal- lons of Water Pumped per Month. | Average No. of Gallons Pumped per Day. | Pounds of Coal Consumed per Month for Pump- ing. | Average No. of Pounds per Day for Pumping. | Pounds per Month for Changing Boilers. | Pounds Charged to Heating Build- ing, Shop in Pipe Yard, Etc. | Total Pounds of Coal Consumed per Month. | Average Head Against Pumps in Feet. | Duty in Million- |
|-------------------|------------------|--------------------------------|--------------------------------------|--------------------------------------|---|--|--|---|--|--|--|--|---|------------------|
| January | 31 | 744 | 24 | 1,799,976 | 57,741 | 1,844,210,120 | 59,490,650 | 3,132,900 | 101,061 | 7,000 | 31,000 | 3,170,960 | 108.4 | 53,700,000 |
| February | 28 | 672 | 24 | 1,640,708 | 58,600 | 1,690,140,720 | 60,362,170 | 2,798,800 | 99,940 | 7,600 | 19,600 | 2,825,500 | 108.7 | 55,840,000 |
| March | 31 | 744 | 24 | 1,902,654 | 61,376 | 1,961,866,820 | 63,270,600 | 3,114,600 | 100,471 | 6,300 | 31,000 | 3,120,900 | 106.5 | 56,295,700 |
| April | 30 | 720 | 24 | 1,818,652 | 60,621 | 1,874,131,120 | 62,471,087 | 2,950,500 | 98,850 | 7,400 | 29,500 | 2,957,900 | 105.7 | 56,325,200 |
| May | 31 | 744 | 24 | 1,870,931 | 60,852 | 1,928,085,760 | 62,198,500 | 3,064,800 | 98,840 | 12,800 | 31,000 | 3,077,600 | 105.8 | 55,581,000 |
| June | 30 | 720 | 24 | 1,807,765 | 60,268 | 1,868,024,460 | 62,100,815 | 2,893,200 | 94,440 | 5,800 | 29,500 | 2,899,000 | 102.4 | 56,535,600 |
| July | 31 | 744 | 24 | 1,900,276 | 61,299 | 1,958,658,820 | 63,182,500 | 2,996,100 | 96,048 | 7,400 | 31,000 | 3,003,500 | 104.5 | 57,241,000 |
| August | 31 | 744 | 24 | 1,895,128 | 58,875 | 1,980,867,940 | 60,673,000 | 2,964,600 | 95,632 | 10,500 | 29,500 | 2,975,100 | 105.0 | 55,798,000 |
| September | 30 | 720 | 24 | 1,741,828 | 54,727 | 1,794,564,920 | 59,818,880 | 2,842,500 | 94,750 | 8,200 | 29,500 | 2,850,700 | 104.5 | 55,804,700 |
| October | 31 | 744 | 24 | 1,648,179 | 53,006 | 1,686,733,600 | 54,410,800 | 2,697,800 | 87,000 | 9,000 | 29,500 | 2,706,300 | 109.1 | 53,600,000 |
| November | 30 | 720 | 24 | 1,387,772 | 46,259 | 1,415,525,000 | 47,184,166 | 2,225,400 | 74,180 | 9,000 | 21,700 | 2,234,400 | 98.8 | 52,771,000 |
| December | 31 | 744 | 24 | 1,446,450 | 46,658 | 1,489,474,560 | 48,047,560 | 2,442,600 | 78,800 | 9,700 | 21,700 | 2,478,000 | 101.1 | 51,808,000 |
| TOTALS | 365 | 8,760 | ..... | 20,775,812 | ..... | 21,386,788,840 | ..... | 34,062,800 | ..... | 99,700 | 72,800 | 34,284,800 | ..... | ..... |
| Average per Month | ..... | 780 | ..... | 1,731,278 | ..... | 1,782,327,820 | ..... | 2,888,566 | ..... | 8,808 | ..... | ..... | 104.4 | 55,019,000 |
| Average per Day | ..... | ..... | 24 | ..... | 56,647 | ..... | 58,600,000 | ..... | 98,342 | 273 | ..... | ..... | ..... | ..... |

The following table shows the cost of repairs of engines and boilers, cost of repairs per million gallons, average cost of coal per ton, total cost per million gallons pumped, and cost of pumping one foot high up to December 31st, 1890:

| YEAR. | Gallons of Water Pumped. | Head against Pumps in Feet. | Cost of Repairs of Engines and Boilers. | Cost of Repairs per Million Gallons. | Average Cost of Coal per Ton. | Total Cost per Million Gallons. | Cost of Pumping one Million Gallons 1 foot high. |
|-----------|-----------------------------|--------------------------------|---|--|----------------------------------|------------------------------------|---|
| 1877..... | 7,088,127,000 | 109.0 | \$1,123 61 | \$0.1585 | \$5 22 | \$6 66 | \$0.0611 |
| 1878..... | 8,418,918,000 | 106.0 | 583 66 | 0.0693 | 3 67 | 5 45 | 0.0514 |
| 1879..... | 9,404,588,000 | 101.0 | 1,879 70 | 0.2319 | 2 62 | 5 02 | 0.0498 |
| 1880..... | 8,648,678,000 | 98.3 | 366 96 | 0.0424 | 3 60 | 5 15 | 0.0524 |
| 1881..... | 9,572,845,000 | 90.0 | 1,100 18 | 0.1136 | 3 60 | 5 25 | 0.0588 |
| 1882..... | 10,000,750,000 | 88.2 | 854 90 | 0.0864 | 3 90 | 5 00 | 0.0568 |
| 1883..... | 10,376,678,000 | 85.1 | 2,345 63 | 0.2260 | 4 10 | 5 09 | 0.0598 |
| 1884..... | 13,880,983,680 | 90.5 | 1,285 58 | 0.0926 | 2 96 | 4 96 | 0.0548 |
| 1885..... | 19,447,521,980 | 105.0 | 2,002 11 | 0.1028 | 3 35 | 4 95 | 0.0477 |
| 1886..... | 19,454,388,260 | 100.9 | 2,634 62 | 0.1360 | 3 18 | 4 80 | 0.0475 |
| 1887..... | 20,045,528,600 | 97.3 | 3,648 03 | 0.1819 | 3 10 | 4 49 | 0.0461 |
| 1888..... | 21,046,189,980 | 100.5 | 1,675 99 | 0.0796 | 3 31 | 4 65 | 0.0463 |
| 1889..... | 22,805,593,400 | 106.0 | 1,859 27 | 0.0833 | 3 27 | 4 59 | 0.0461 |
| 1890..... | 21,386,733,840 | 104.4 | 3,837 16 | 0.1794 | 2 81 | 4 75 | 0.0455 |

About the middle of July one of the two 15,000,000-gallon pumping engines, at the new Harrison street station, began delivering water to the city, thereby relieving, to a considerable extent, the great demand upon these works. The amount of gallons of water pumped during the past year was 918,859,560 gallons less than the previous year, or about four per cent. decrease. The cost to pump 1,000,000 gallons will average fairly with the work of former years, but the cost to pump one million gallons one foot high has been less than at any time in the history of the works.

The following table shows the total quantity of water pumped and the hours run by the four (4) engines respectively :

| Engine Designated as | Hours Run. | | Revolutions Made. | Total Gallons of Water Pumped. |
|----------------------|------------|---------|-------------------|--------------------------------|
| | Hours. | Minutes | | |
| No. 25..... | 8,228 | 55 | 5,303,768 | 5,303,768,000 |
| No. 26..... | 8,255 | 10 | 5,281,180 | 5,281,180,000 |
| No. 50..... | 7,745 | 50 | 5,098,742 | 5,399,366,520 |
| No. 51..... | 7,742 | 05 | 5,096,622 | 5,402,419,320 |
| TOTALS..... | 31,972 | 00 | 20,775,312 | 21,386,733,840 |

DEPARTMENT OF PUBLIC WORKS.

THE FOLLOWING TABLES SHOW THE GALLONS OF WATER PUMPED EACH MONTH DURING THE
PAST FOURTEEN YEARS.

| MONTHS. | 1877. | 1878. | 1879. | 1880. | 1881. | 1882. | 1883. |
|-----------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|
| January | 868,507,000 | 668,352,000 | 845,958,000 | 579,735,000 | 885,170,000 | 765,040,000 | 987,631,000 |
| February | 680,355,000 | 585,950,000 | 775,107,000 | 636,543,000 | 800,886,000 | 740,378,000 | 840,848,000 |
| March | 454,973,000 | 660,364,000 | 846,633,000 | 696,380,000 | 866,546,000 | 806,646,000 | 905,786,000 |
| April | 432,888,000 | 798,902,000 | 838,126,000 | 683,913,000 | 797,800,000 | 831,658,000 | 881,055,000 |
| May | 473,630,000 | 781,498,000 | 868,911,000 | 730,603,000 | 845,573,000 | 853,386,000 | 918,965,000 |
| June | 485,779,000 | 800,318,000 | 890,662,000 | 737,173,000 | 813,964,000 | 896,843,000 | 893,913,000 |
| July | 618,048,000 | 789,700,000 | 788,678,000 | 794,964,000 | 876,338,000 | 859,186,000 | 939,824,000 |
| August | 666,366,000 | 784,651,000 | 785,461,000 | 838,475,000 | 892,158,000 | 864,874,000 | 941,679,000 |
| September | 685,651,000 | 721,386,000 | 675,686,000 | 717,849,000 | 848,576,000 | 832,856,000 | 909,998,000 |
| October | 624,664,000 | 697,367,000 | 683,678,000 | 794,456,000 | 579,467,000 | 866,076,000 | 931,694,000 |
| November | 599,707,000 | 486,168,000 | 764,359,000 | 739,878,000 | 574,679,000 | 859,408,000 | 519,487,000 |
| December | 613,665,000 | 664,717,000 | 831,530,000 | 816,817,000 | 798,199,000 | 918,190,000 | 773,400,000 |
| TOTALS | 7,068,127,000 | 8,418,918,000 | 9,404,588,000 | 8,648,678,000 | 9,572,846,000 | 10,000,750,000 | 10,376,679,000 |

| MONTHS. | 1894. | 1895. | 1896. | 1897. | 1898. | 1899. | 1890. |
|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| January | 955,490,000 | 1,764,128,000 | 1,740,996,200 | 1,868,598,900 | 1,787,829,080 | 1,839,421,280 | 1,844,210,120 |
| February | 889,546,000 | 1,658,860,700 | 1,554,614,760 | 1,672,601,080 | 1,687,609,320 | 1,840,831,460 | 1,890,140,720 |
| March | 954,418,000 | 1,746,149,220 | 1,681,985,000 | 1,818,521,100 | 1,821,494,000 | 1,998,670,580 | 1,961,366,820 |
| April | 980,908,000 | 1,498,856,720 | 1,393,069,720 | 1,714,681,520 | 1,747,594,960 | 1,872,808,120 | 1,874,131,120 |
| May | 952,907,000 | 1,632,207,920 | 1,614,370,400 | 1,767,735,680 | 1,837,128,500 | 1,988,238,900 | 1,928,035,760 |
| June | 926,524,000 | 1,596,137,620 | 1,615,050,600 | 1,688,071,560 | 1,796,657,840 | 1,865,122,200 | 1,868,024,460 |
| July | 1,061,390,500 | 1,729,898,200 | 1,669,581,840 | 1,765,820,140 | 1,898,185,700 | 1,948,645,580 | 1,958,658,820 |
| August | 1,482,553,340 | 1,675,467,160 | 1,684,536,560 | 1,690,814,360 | 1,890,680,140 | 1,927,588,680 | 1,880,866,940 |
| September | 1,404,678,420 | 1,598,727,920 | 1,646,232,280 | 1,563,794,400 | 1,770,456,860 | 1,849,918,760 | 1,794,564,920 |
| October | 1,381,246,760 | 1,592,069,440 | 1,658,388,920 | 1,418,456,880 | 1,825,336,800 | 1,895,716,760 | 1,696,733,600 |
| November | 1,316,406,000 | 1,477,747,780 | 1,559,988,160 | 1,462,948,640 | 1,411,268,000 | 1,656,399,160 | 1,415,525,000 |
| December | 1,624,570,600 | 1,490,781,700 | 1,685,578,820 | 1,618,554,340 | 1,586,659,760 | 1,699,227,920 | 1,489,474,560 |
| TOTALS | 13,880,933,680 | 19,447,521,980 | 19,454,388,260 | 20,045,538,600 | 21,046,189,980 | 22,305,598,400 | 21,386,733,840 |

Coal has been used and received as follows in 1890 :

| COAL RECEIVED. | | Tons. | Pounds. |
|--|--|--------|---------|
| On hand January 1, 1890..... | | 204 | 1,540 |
| Received from Daniel Corkery, as follows : | | | |
| Indiana lump..... | | 270 | 1,140 |
| Indiana block .. | | 16,851 | 930 |
| Miscellaneous coal from other firms..... | | 38 | 1,350 |

| COAL USED. | | Tons. | Pounds. |
|---|--------|-------|------------|
| Pumping..... | 17,031 | 800 | |
| Changing boilers..... | 49 | 1,700 | |
| Coal charged to heating building, shops in pipe yard, etc | 36 | 300 | |
| On hand January 1, 1891..... | 248 | 160 | |
| | 17,365 | 960 | 17,365 960 |

EXPENSES DUE TO PUMPING 1890.

| | |
|---|---------------------|
| Salaries..... | \$ 42,774 84 |
| Coal (17,081 $\frac{500}{1000}$ tons) | 48,076 21 |
| Cylinder oil (1,353 $\frac{1}{2}$ gallons) | 1,117 93 |
| Lard oil (156 $\frac{1}{2}$ gallons)..... | 81 96 |
| Kerosene, Tallow, etc | 39 11 |
| Grease, lubricant (5,064 pounds) | 405 12 |
| Waste (8,359 pounds)..... | 717 99 |
| Gas (1,435,800 cubic feet)..... | 1,435 80 |
| Repairs to engines and pumps..... | 3,178 97 |
| Repairs to boiler..... | 658 19 |
| Fire brick and clay. | 200 60 |
| Fire Tile | 249 72 |
| Rubber and packing | 539 63 |
| Rubber Valves (main pump)..... | 801 87 |
| Pipes and Fittings | 244 02 |
| Castings (grate, bar, etc.)..... | 119 75 |
| Blacksmithing (fire, tools, etc.)..... | 259 75 |
| Hardware, etc..... | 254 26 |
| Small stores | 371 86 |
| Services of diver | 40 00 |
| Ice | 64 20 |
| Miscellaneous | 84 75 |
| Cost of pumping..... | \$101,716 52 |
| Maintenance and repairs..... | 1,095 34 |
| Cost of coal for purposes other than pumping..... | 101 16 |
| Total cost for the year | <u>\$102,913 02</u> |

| | |
|---|----------------|
| Number of gallons of water pumped during the year..... | 21,386,733,840 |
| Total cost of pumping..... | \$101,716 52 |
| Cost to pump one million gallons..... | \$4 75 |
| Average head against the pumps during the year in feet..... | 104.4 |
| Cost of delivering water per million gallons one foot high... | \$0.0455 |
| Cost of repairs of engines and boilers per million gallons... | \$0.1794 |

Distributed as follows:

| | |
|-----------------|--------|
| To engines..... | 0.1486 |
| To boilers..... | 0.0308 |

The following table shows the cost of delivering water per million gallons during the past fourteen years and the average cost of coal at the works:

| YEARS. | Cost of Coal per Ton. | Total Cost per Million Gallons. |
|-----------------------------|--------------------------|------------------------------------|
| 1877..... | \$5 22 | \$6 66 |
| 1878..... | 8 67 | 5 45 |
| 1879..... | 2 62 | 5 02 |
| 1880..... | 3 60 | 5 15 |
| 1881..... | 3 60 | 5 25 |
| 1882..... | 3 90 | 5 00 |
| 1883..... | 4 10 | 5 09 |
| 1884..... | 2 96 | 4 96 |
| 1885..... | 3 35 | 4 95 |
| 1886..... | 3 18 | 4 80 |
| 1887..... | 3 10 | 4 49 |
| 1888..... | 3 31 | 4 65 |
| 1889..... | 3 27 | 4 89 |
| 1890..... | 2 81 | 4 75 |
| Average fourteen years..... | \$3 47 | \$5 08 |

BUILDING AND GROUNDS.

In this connection it would not be amiss to again urge the necessity of painting the outside of the building. It needs it very badly, and the longer it is delayed the more apparent the necessity for doing it becomes. Otherwise the building and grounds around the same are in good order.

During the year the conduct of the employes, as regards faithful performance of duties, has been, taken as a whole, very satisfactory; especially can this be said of Assistant Engineers Sanborn, Mason and Turnbull, whose faithfulness and diligence are worthy of mention.

Respectfully submitted,

JAMES STEWART,

Engineer in charge West Pumping Works.

EXHIBIT "C."

LAKE VIEW PUMPING WORKS.

CHICAGO, January 9, 1891.

A. W. COOKE,

City Engineer.

SIR:—I herewith submit the Annual Report of the operation of the Lake View District Pumping Works for the year ending December 31st, 1890.

The three engines are in good condition; but owing to the great number of new water mains that have been laid in the past year the demand for water in this district is so great that the engines' capacity are no longer large enough. As it has been necessary to run the Gaskill and Worthington together through the summer months, the only reserve left is a two million gallon Flanders engine.

The engines are one Gaskill, with a capacity of twelve million (12,000,000); one Worthington, five million (5,000,000); and one Flanders, two million (2,000,000) gallons.

Therefore, if either of the large engines had to be stopped for repairs the two remaining ones would not be large enough to supply the demand for water.

The greatest amount of water pumped in one month (August) was 393,187,090 gallons.

The smallest amount of water pumped in one month (February) was 195,286,858 gallons.

The greatest amount of water pumped in one day (August 11th) was 18,675,867 gallons.

The smallest amount of water pumped in one day (January 3rd) was 6,231,264 gallons.

The following tabulated record exhibits in detail the operation of the works for the year ending December 31st, 1890:

| MONTHS. 1890. | No. of Days. | Total Revolutions per Month. | Average No. of Revolutions per Day. | Total No. of Gal- lons of Water Pumped per Month, less 5% of action. | Average No. of Gallons of Water Pumped per Day, less 5% of action. | Pounds of Coal Consumed per Month for Pump- ing. | Average No. Pounds of Coal Consumed per Day for Pump- ing. | Total No. Pounds of Coal Con- sumed per Month. |
|--------------------------------|--------------|---------------------------------|---|--|--|---|--|---|
| | | | | | | | | |
| January..... | 31 | 720,984 | 23,255 | 314,250,896 | 6,911,808 | 359,500 | 11,596 | 378,800 |
| February..... | 28 | 736,550 | 26,094 | 195,286,858 | 6,974,530 | 885,500 | 13,767 | 395,000 |
| March..... | 31 | 808,518 | 25,919 | 226,181,280 | 7,296,170 | 421,000 | 13,580 | 462,200 |
| April..... | 30 | 906,939 | 31,564 | 212,690,321 | 7,286,844 | 418,500 | 13,784 | 485,000 |
| May..... | 31 | 990,769 | 29,690 | 224,175,116 | 7,286,455 | 479,500 | 15,145 | 496,000 |
| June..... | 30 | 1,093,286 | 36,441 | 278,291,688 | 9,276,389 | 450,000 | 15,000 | 469,000 |
| July..... | 31 | 1,217,802 | 39,287 | 346,826,640 | 11,171,795 | 491,000 | 15,838 | 446,000 |
| August..... | 31 | 1,054,057 | 34,001 | 378,187,980 | 12,088,398 | 686,000 | 22,125 | 782,000 |
| September..... | 30 | 910,048 | 30,334 | 324,931,759 | 10,831,058 | 580,000 | 19,380 | 597,000 |
| October..... | 31 | 912,118 | 29,243 | 318,584,891 | 10,155,622 | 518,500 | 16,564 | 545,000 |
| November..... | 30 | 937,631 | 31,254 | 201,355,592 | 6,111,853 | 450,000 | 15,000 | 482,000 |
| December..... | 31 | 817,017 | 26,590 | 200,842,628 | 6,478,794 | 446,500 | 14,400 | 478,000 |
| TOTALS..... | 885 | 11,080,605 | ..... | 8,111,103,655 | ..... | 5,676,000 | ..... | 6,059,000 |
| General Average per Month..... | ... | 926,752 | ..... | 259,230,280 | ..... | 482,500 | ..... | ..... |
| General Average per Day..... | ... | ..... | 28,590 | ..... | 8,246,560 | ..... | 15,686 | ..... |

BOILERS.

The four boilers are in good condition but the smokestack is too small for the boilers. If it were larger there would be a saving to repairs on boilers and the amount of coal burned.

The new electric light plant is working well and is a great and welcome improvement to the works.

EXPENSES DUE TO PUMPING, 1890.

| | |
|--|--------------------|
| Salaries..... | \$ 9,450 00 |
| Coal..... | 9,848 93 |
| Cylinder oil (930 gallons)..... | 450 00 |
| Engine oil (335 gallons) | 135 75 |
| Lubricating compound (1,850 pounds)..... | 177 20 |
| Cotton waste (2,000 pounds) | 180 00 |
| Miscellaneous | 240 00 |
| Total..... | <u>\$20,476 88</u> |

Number of gallons of water pumped during the year 1890 was 3,111,-103,655.

Cost of pumping one million (1,000,000) gallons, \$6.59.

Assistant Engineers Staley, Miller, Jordon, and all other employes at the works have been faithful in the discharge of their respective duties.

Respectfully submitted,

FRED. D. PARKER,

Engineer in charge Lake View Pumping Works.

*EXHIBIT "D."***SIXTY-EIGHTH STREET WATER WORKS.**

CHICAGO, January 10, 1891.

A. W. COOKE, Esq.,

City Engineer.

DEAR SIR:—Herewith please find report of the operation and expenditures of the Sixty-eighth Street Water Works for the year ending December 31, 1890:

| | |
|---|--------------------|
| Salaries | \$33,592 99 |
| Coal (11,907 tons)..... | 31,081 32 |
| Coal on hand January 1, 1890 (350 tons)..... | 801 00 |
| Cylinder oil (1,532 gallons)..... | 1,149 65 |
| Grease and other lubricants | 493 20 |
| Light, hard oil | 141 75 |
| Kerosene | 19 36 |
| Waste | 381 07 |
| Repairs to engines | 3,891 00 |
| Fire brick and clay | 119 00 |
| Repairs to buildings | 1,582 36 |
| Rubber valves (main pumps)..... | 763 56 |
| Rubber and packing | 444 60 |
| Miscellaneous | 394 67 |
| Pipe and fittings | 178 48 |
| Grate bars | 554 10 |
| Tools | 89 76 |
| Hardware, etc | 125 58 |
| Matting and furniture for engine room and office | 281 89 |
| Cleaning material | 107 57 |
| Sundry small stores | 1,890 18 |
| | <u>\$78,083 04</u> |
| Deduct coal on hand January 1, 1891, 292 tons, at \$2.83..... | 820 36 |
| | <u>\$77,256 68</u> |

COAL RECEIVED.

| | Tons. |
|-------------------------------------|--------|
| On hand January 1, 1890..... | 350 |
| Received from Weaver, Tod & Co.:— | |
| Youghiogeny lump..... | 4,089 |
| Received from Weaver, Getz & Co.:— | |
| Youghiogeny lump..... | 4,277 |
| Indiana block..... | 249 |
| Cross creek..... | 45 |
| Youghiogeny nut..... | 95 |
| Illinois coal..... | 122 |
| Received from E. T. Daniels & Co.:— | |
| Illinois coal..... | 3,006 |
| Received from Coxe Bros..... | 24 |
| Grand total..... | 12,257 |
| Total coal used..... | 11,965 |
| On hand January 1, 1891..... | 292 |
| Grand total..... | 12,257 |

The following table will show the amount of water pumped each month during the year :

| | Gallons. |
|----------------|---------------|
| January..... | 726,468,301 |
| February..... | 599,932,390 |
| March..... | 639,212,038 |
| April..... | 621,030,121 |
| May..... | 603,946,034 |
| June..... | 747,729,824 |
| July..... | 921,558,239 |
| August..... | 829,983,800 |
| September..... | 932,284,765 |
| October..... | 864,735,801 |
| November..... | 865,890,787 |
| December..... | 829,627,930 |
| | 9,182,400,030 |

ENGINEER'S REPORT.

81

| | |
|---|-------------|
| Total expense..... | \$77,256 68 |
| Total cost coal used..... | 31,055 96 |
| Total cost pumping 1,000,000 gallons..... | 8 41 |
| Total cost pumping 1,000,000 gallons 100 feet high | 4 49 |
| Cost of coal pumping 1,000,000 gallons..... | 3 38 |
| Cost of coal pumping 1,000,000 gallons 100 feet high..... | 1 80 |
| Average head against pumps in feet..... | 1 87 |
| Average duty for year..... | 59,783,900 |

Respectfully submitted,

ROBERT HAWKINS,

Engineer in charge Sixty-eighth street Water Works.

EXHIBIT "E."

CENTRAL PUMPING STATION.

CHICAGO, January 1, 1891.

- A. W. COOKE,
City Engineer.

DEAR SIR:—I herewith submit the First Annual Report of the operation of the Central Pumping Station, for the fiscal year ending December 31, 1890:

OPERATIONS OF THE EDWARD P. ALLIS CO.'S ENGINES AND BOILERS, AND MURPHY FURNACES.

| 1890. | Number of Days Run. | Number of Hours Run per Month. | Average Number of Hours Run per Day. | Total Revolutions per Month. | Average Number of Revolutions per Day. | Gallons of Water Pumped per Month. | Average Gallons of Water Pumped per Day. | Pounds of Coal Consumed per Month for Pumping. | Average Number of Pounds of Coal Consumed per Day for Pumping. | Pounds of Coal Consumed for Changing Boilers. | Total Number of Pounds of Coal Consumed per Month. | Average Head Against Pumps in Feet. | Average Daily Duty. |
|------------------------------|---------------------|--------------------------------|--------------------------------------|------------------------------|--|------------------------------------|--|--|--|---|--|-------------------------------------|---------------------|
| September..... | 30 | 713 | 23.46 | 688,804 | 22,960.4 | 452,130,945 | 15,071,034.8 | 605,150 | 20,171.38 | 8,910 | 609,060 | 100 | 61,925,585 |
| October..... | 31 | 742 | 23.56 | 696,178 | 22,457.1 | 454,651,289 | 14,666,169 | 555,600 | 17,922.1 | 71,000 | 662,700 | 99 | 69,352,187 |
| November..... | 30 | 720 | 24.00 | 676,809 | 22,560.3 | 444,257,427 | 14,808,590.2 | 512,000 | 17,066.8 | 6,800 | 518,800 | 101 | 72,596,681 |
| December..... | 31 | 748 | 23.58 | 687,447 | 22,175.2 | 451,240,210 | 14,556,135.5 | 478,900 | 15,448.1 | 2,800 | 481,700 | 100 | 77,945,754 |
| TOTALS..... | 122 | 2,918 | 95.40 | 2,749,238 | 90,154 | 1,802,279,881 | 59,101,921 | 2,151,650 | 70,609 | 20,610 | 2,272,260 | ..... | ..... |
| Gen'l Average per Month..... | ..... | 729.1 | ..... | 687,309.1 | ..... | 450,560,965.1 | ..... | 537,912.1 | ..... | ..... | 568,065 | 100 | ..... |
| Gen'l Average per Day..... | ..... | ..... | 23.55 | ..... | 22,538.1 | ..... | 14,775,480.1 | ..... | 17,652.1 | 5,152.1 | ..... | ..... | ..... |

NOTE.—Coal for heating building and pumping out wells included in above amount.

DEPARTMENT OF PUBLIC WORKS.

TOTAL EXPENDITURES.

| 1890. | Wages of Employees per Month. | Cost of Coal per Month. | Cost of Gas per Month. | Material Used in Steam Heating. | Material Used for General Construction. | Cost of Oil, Grease and Waste per Month. | Cost of Concrete Sidewalk. | Cost of Putting in Electric Light. | Plumbing and Gas Fitting per Month. | Repairing Tools per Month. | Sundry Small Stores per Month. | TOTAL. |
|-----------|-------------------------------|-------------------------|------------------------|---------------------------------|---|--|----------------------------|------------------------------------|-------------------------------------|----------------------------|--------------------------------|-------------|
| Sept..... | \$2,237 79 | \$1,082 53 | \$ 66 20 | \$ 481 18 | \$ 65 18 | \$159 93 | ..... | ..... | ..... | \$ 6 25 | \$ 9 60 | \$4,122 61 |
| Oct..... | 3,175 36 | 862 10 | 66 80 | 632 55 | 247 19 | 392 55 | \$605 00 | ..... | \$503 23 | 33 25 | 90 84 | 6,498 87 |
| Nov..... | 4,506 88 | 884 48 | 74 20 | 760 88 | 248 74 | 18 50 | ..... | ..... | 37 53 | ..... | 51 20 | 6,578 91 |
| Dec..... | 3,999 86 | 1,226 24 | 78 20 | 983 90 | 985 27 | 45 90 | ..... | \$970 59 | 4 50 | 45 81 | 28 37 | 8,263 64 |
| TOTALS.. | \$13,941 89 | \$4,055 35 | \$285 40 | \$2,798 51 | \$1,496 88 | \$511 88 | \$605 00 | \$970 59 | \$545 26 | \$85 31 | \$169 01 | \$25,464 03 |

The Central pumping station building and out-buildings are completed with the exception of the west walls of the boiler room and coal shed which are at present closed in with boards.

The engine-room contains two triple expansion engines, capacity fifteen million gallons each per day, erected by The Edward P. Allis Co., of Milwaukee, Wis. The boiler room contains two batteries of three boilers each, also put in by The Edward P. Allis Co. The brick work of furnaces was done at the expense of the city. The fronts, grates, automatic feeders, rocker bars, etc., were furnished by the Murphy Iron Works, of Detroit, Mich.

Electric light appliances were put in by the Chicago Bureau of Light. The steam heating work was done by M. J. Tierny & Co., of the city of Chicago.

The coal shed contains large platform scale put in place by Fairbanks & Morse, of the city of Chicago. With the exception of a few minor details everything in and about the building is completed.

CHAS. McDONALD,

Engineer in charge Central Pumping Station.

EXHIBIT "F."

WATER PIPE EXTENSION.

CHICAGO, February 1, 1891.

A. W. COOKE,

City Engineer.

SIR:—I have the honor to submit for your consideration my report of the work done in that department of your Bureau devoted to Water Pipe Extension.

The net increase to the water system during the year is more than one hundred and twenty-nine miles. The districts of Hyde Park, Lake, Lake View and Jefferson have been especially benefited, Hyde Park alone having more water pipe laid in 1890 than was laid in the same year in the North, South and West Divisions combined. The length of all sizes laid in the North Division is 9,946 feet; in the South Division, 71,196 feet; in the West Division, 21,681 feet; in Hyde Park, 203,966 feet; in Lake View, 71,227 feet; in Lake, 123,597 feet, and in Jefferson, 101,346 feet. The total length laid in all districts is $133\frac{11}{8}\frac{9}{8}$ miles.

We have taken up or abandoned 21,328 feet of small pipe, substituting other pipe therefor, which leaves the net increase $129\frac{511}{880}$ miles, and the total amount in use in the city is $1,205\frac{855}{880}$ miles. Of the pipe laid 105,294 feet was at the expense of property owners, the cost of which will be refunded when the required revenue is derived from the frontage.

The pipe laid during the year in the South Division in connection with the new pumping works on Fourteenth street and not yet in use consists of 1,325 feet of forty-eight-inch, 5,934 feet of thirty-six-inch and 20,270 feet of twenty-four-inch. For the improvement of the Lake and Hyde Park systems, the sixteen and fourteen-inch pipe originally laid by the Town of Lake has been abandoned and thirty-six and thirty-inch pipe substituted for it.

The city shop has been unable to furnish us with hydrants and valves as fast as we needed them. We need about 200 hydrants to complete the work done. We have been compelled to buy valves so that we should not be delayed.

THE HISTORY OF

THE CITY OF BOSTON

FROM THE FIRST SETTLEMENT TO THE PRESENT

BY

JOSEPH NEALE

OF THE BOSTON BAR

IN TWO VOLUMES

VOLUME I

BOSTON

1846

WILLIAM B. ALLEN, PRINTER

10 NASSAU ST.

N. Y.

1846

WILLIAM B. ALLEN, PRINTER

10 NASSAU ST.

N. Y.

1846

WILLIAM B. ALLEN, PRINTER

10 NASSAU ST.

N. Y.

1846

WILLIAM B. ALLEN, PRINTER

10 NASSAU ST.

N. Y.

1846

WILLIAM B. ALLEN, PRINTER

10 NASSAU ST.

N. Y.

1846

WILLIAM B. ALLEN, PRINTER

10 NASSAU ST.

N. Y.

1846

111

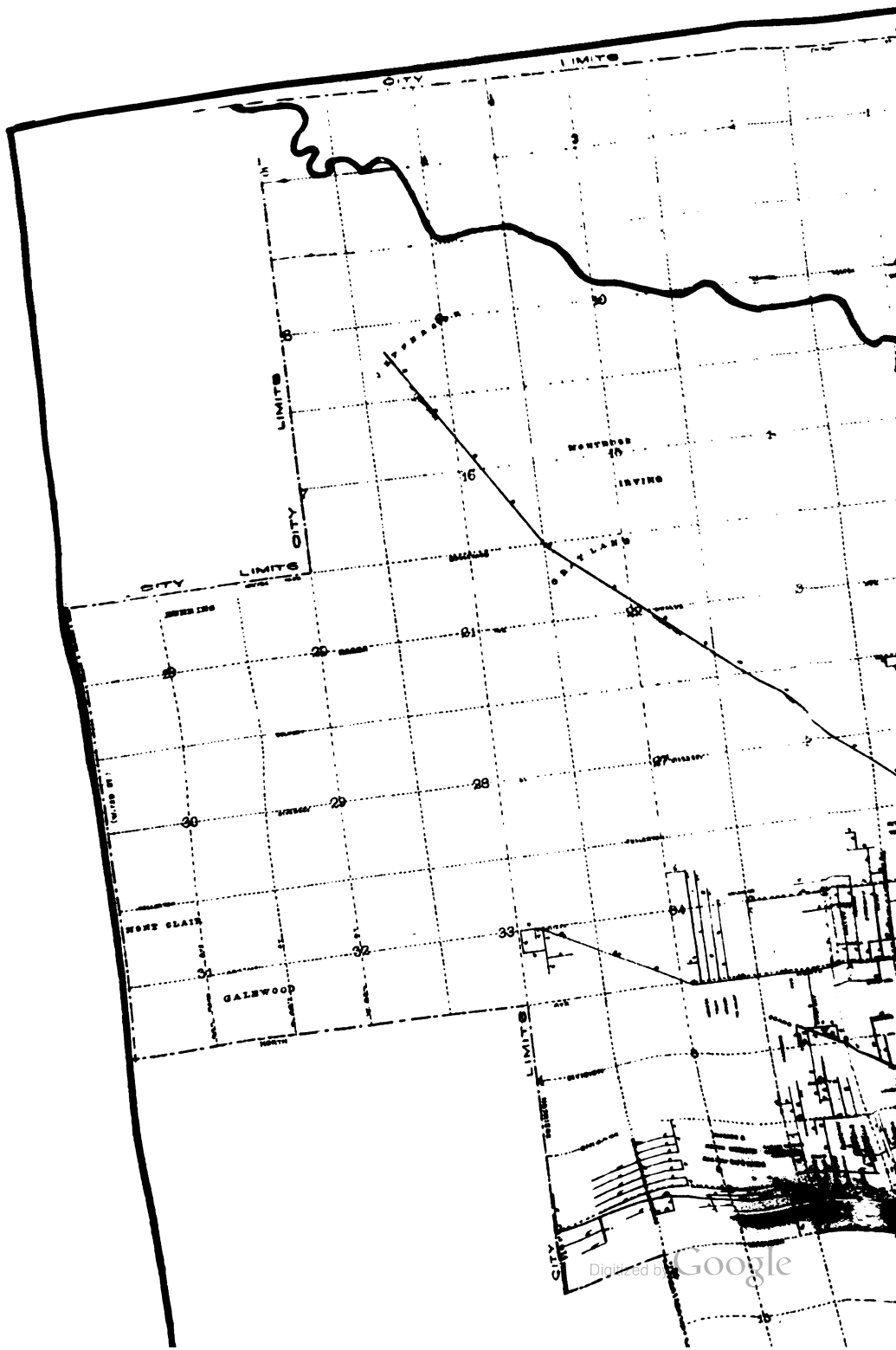
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The number of valves placed in the North Division is twenty-two, in the South eighty-seven, in the West 266, in Hyde Park 310, in Lake View 124, in Lake 225, and in Jefferson 119; total 1,153; total in use in the city, 8,599.

The number of fire hydrants placed in the North Division is twenty-nine, in the South ninety-seven, in the West 287, in Hyde Park 429, in Lake View 102, in Lake 216, and in Jefferson 229; total, 1,389; total in use in the city, 11,836.

The following tabulated statement shows in detail the work done in water pipe extension during the year :

NORTH DIVISION.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|--|------------------------|-----------------------|----------------------------|------------------------|
| Alley east of Astor. | Crossing | Burton place..... | 50 | 6 |
| Alley bet. Vine and Orchard. | { Vine..... | Orchard..... | 440 | 6 |
| North of North ave. | | | | |
| Burton place..... | State | Lake Shore drive..... | 640 | 6 |
| Dominick..... | Webster avenue..... | Southward | 550 | 6 |
| Dominick..... | Webster avenue..... | Northward | 270 | 6 |
| Chester | Clybourn avenue | Fullerton avenue..... | 1,172 | 6 |
| Clay..... | Halsted..... | Westward | 190 | 6 |
| Clay..... | Sheffield avenue | Fremont..... | 642 | 6 |
| Clay..... | Dayton | Eastward..... | 100 | 6 |
| Fullerton avenue..... | North Park avenue..... | Clark..... | 1,037 | 6 |
| Hawthorne avenue..... | Weed..... | Blackhawk | 660 | 6 |
| Huber..... | Crossing | Racine avenue..... | 40 | 6 |
| Huron..... | Franklin | Market..... | 296 | 8 |
| Huron..... | Market | Kingsbury | 1,100 | 8 |
| Huron..... | Kingsbury | Westward | 365 | 8 |
| Lewis..... | Crossing | Belden avenue..... | 24 | 6 |
| Marcy..... | Crossing | Sheffield | 40 | 6 |
| Siebens place..... | Hirsch..... | Larrabee | 680 | 6 |
| Seminary avenue..... | Centre..... | Kroger | 616 | 6 |
| Smith | Weed..... | Blackhawk | 455 | 6 |
| Vine..... | Vedder | Gardner | 218 | 6 |
| Weed..... | Crossing | Hawthorn | 23 | 6 |
| Total | | | 9,598 | |
| Add branch pipe for hydrants | | | 36 | 4 |
| Add branch pipe for hydrants..... | | | 312 | 6 |
| Total feet laid in North Division..... | | | 9,946 | |

SOUTH DIVISION.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|----------------------------|-----------------------------------|-----------------------------------|----------------------------|------------------------|
| Archer avenue..... | Twenty-fourth..... | Hanover..... | 1,490 | 8 |
| Auburn..... | Thirty-second..... | Northward..... | 284 | 6 |
| Bonaparte..... | Lock..... | Eastward..... | 150 | 4 |
| Bonfield..... | Lyman..... | Southward..... | 500 | 6 |
| Bushnell..... | 200 ft. n. of Hanover..... | Westward..... | 220 | 4 |
| Butterfield..... | Crossing..... | Twenty-third..... | 78 | 6 |
| Butler..... | Twenty-fourth..... | Twenty-fifth..... | 300 | 6 |
| Butler..... | Crossing..... | 307 ft. S. of Douglas avenue..... | 60 | 6 |
| Butler (East side)..... | Douglas avenue..... | Southward..... | 310 | 6 |
| Butler (West side)..... | Douglas avenue..... | Southward..... | 310 | 6 |
| Butler..... | 315 ft. S. of Douglas avenue..... | Southward..... | 315 | 6 |
| Butler..... | Crossing..... | 307 ft. N. of Douglas avenue..... | 60 | 6 |
| Butler..... | Douglas avenue..... | Northward..... | 310 | 6 |
| Butler (East side)..... | Douglas avenue..... | Northward..... | 310 | 6 |
| Butler (West side)..... | Douglas avenue..... | Northward..... | 310 | 6 |
| Butler..... | Crossing..... | Thirty-third..... | 41 | 6 |
| Butterfield..... | Crossing..... | Thirty-ninth..... | 14 | 8 |
| Calumet avenue..... | Thirty-fifth..... | Southward..... | 646 | 6 |
| Champlain..... | Thirty-sixth..... | Southward..... | 110 | 6 |
| Dashiel..... | Thirty-third..... | Northward..... | 450 | 6 |
| Dearborn..... | Thirty-ninth..... | Southward..... | 14 | 8 |
| Douglas avenue..... | Portland avenue..... | Eastward..... | 180 | 6 |
| Douglas avenue..... | Crossing..... | 462 ft. off Shields..... | 60 | 6 |
| Douglas avenue..... | Shields avenue..... | Eastward..... | 465 | 6 |
| Douglas avenue..... | Portland avenue..... | Shields..... | 276 | 6 |
| Douglas av (S. side)..... | Shields..... | Stewart..... | 240 | 6 |
| Douglas av (N. side)..... | Shields..... | Stewart..... | 240 | 6 |
| Douglas avenue..... | Butler..... | Hanover..... | 310 | 6 |
| Douglas av (N. side)..... | Butler..... | Parnell..... | 318 | 6 |
| Douglas av (S. side)..... | Butler..... | Parnell..... | 318 | 6 |
| Douglas avenue..... | Crossing..... | 307 ft. E. of Butler..... | 60 | 6 |
| Douglas av (N. side)..... | Butler..... | Eastward..... | 310 | 6 |
| Douglas avenue..... | Yorktown..... | Leavitt..... | 310 | 6 |
| Emerald avenue..... | Crossing..... | Thirty-ninth..... | 14 | 4 |
| Fifth avenue..... | Crossing..... | Thirty-third..... | 41 | 6 |
| Fisk..... | Springer..... | Southward..... | 487 | 6 |
| Forrest avenue..... | Thirty-first..... | Thirty-ninth..... | 5,154 | 24 |
| Fourteenth..... | Michigan avenue..... | Third avenue..... | 1,325 | 48 |
| Hanover..... | Crossing..... | Thirty-third..... | 80 | 6 |
| Hickory..... | Fuller..... | Lock..... | 207 | 8 |
| Joseph..... | Washtenaw..... | Eastward..... | 278 | 6 |
| LaSalle..... | Twenty-sixth..... | Sixteenth..... | 5,286 | 36 |
| Langley avenue..... | Thirty-ninth..... | Southward..... | 8 | 8 |
| Leavitt..... | Thirty-third..... | Bross..... | 570 | 8 |
| Leavitt..... | Thirty-fourth..... | Southward..... | 245 | 8 |
| Leavitt..... | Archer avenue..... | Southward..... | 412 | 8 |
| Leo..... | Archer avenue..... | Twenty-seventh..... | 641 | 6 |
| Lowe..... | Thirty-seventh..... | Thirty-ninth..... | 1,195 | 24 |
| Lowe..... | Twenty-sixth..... | Thirty-seventh..... | 6,672 | 24 |
| Napoleon place..... | Wentworth avenue..... | Portland avenue..... | 635 | 6 |
| Oxford court..... | Crossing..... | Vernon..... | 66 | 6 |
| Pacific avenue..... | Harrison..... | Van Buren..... | 854 | 6 |
| Portland av (E. side)..... | Douglas..... | Southward..... | 140 | 6 |
| Portland av (W. side)..... | Douglas..... | Southward..... | 140 | 6 |
| Portland avenue..... | Crossing..... | 187 ft. S. of T..... | 60 | 6 |

SOUTH DIVISION—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|---------------------------|---------------------------|-----------------------------------|----------------------------|------------------------|
| Portland avenue.... | Crossing..... | Thirty-third..... | 41 | 6 |
| Prairie avenue..... | Thirty-ninth..... | Southward..... | 20 | 8 |
| River street..... | Michigan avenue..... | Eastward..... | 214 | 8 |
| Robey..... | Archer avenue..... | Thirty-third..... | 815 | 8 |
| Sacramento avenue..... | Thirty-eighth..... | Thirty-ninth..... | 680 | 8 |
| Sacramento avenue..... | Thirty-eighth..... | Northward..... | 530 | 8 |
| Sacramento avenue..... | Thirty-sixth..... | Southward..... | 308 | 8 |
| Shields avenue..... | Thirty-third..... | Northward..... | 562 | 6 |
| Shields avenue..... | Crossing..... | 417 ft. N. of Douglas avenue..... | 60 | 6 |
| Shields avenue..... | Crossing..... | 409 ft. S. of Douglas avenue..... | 60 | 6 |
| Shields av (E. side)..... | Douglas avenue..... | Southward..... | 412 | 6 |
| Shields av (W. side)..... | Douglas avenue..... | Southward..... | 412 | 6 |
| Shields av (E. side)..... | Douglas avenue..... | Northward..... | 420 | 6 |
| Shields av (W. side)..... | Douglas avenue..... | Northward..... | 420 | 6 |
| Shields avenue..... | Crossing..... | Thirty-third..... | 70 | 6 |
| Sixteenth..... | LaSalle..... | Dearborn..... | 648 | 36 |
| Stewart avenue..... | Thirty-third..... | Thirty-fifth..... | 1,260 | 6 |
| Stewart avenue..... | Thirty-seventh..... | Thirty-seventh court..... | 400 | 6 |
| Stewart avenue..... | Twenty-fifth..... | Southward..... | 1,188 | 6 |
| Stewart avenue..... | Thirty-first..... | Thirty-third..... | 1,307 | 6 |
| Stewart avenue..... | Earl..... | Hamburg..... | 588 | 6 |
| Stewart avenue..... | Thirty-fifth..... | Southward..... | 1,262 | 6 |
| Stewart avenue..... | Thirty-seventh..... | Thirty-eighth..... | 422 | 6 |
| Stewart avenue..... | Thirty-eighth..... | Southward..... | 526 | 6 |
| Stewart avenue..... | Crossing..... | Douglas avenue..... | 60 | 6 |
| Stewart avenue..... | Crossing..... | Thirty-third..... | 70 | 6 |
| Thirtieth..... | Crossing..... | Halsted..... | 41 | 6 |
| Thirty-eighth court..... | Crossing..... | Wood..... | 44 | 6 |
| Thirty-eighth court..... | Crossing..... | Stewart..... | 40 | 6 |
| Thirty-eighth court..... | Ashland avenue..... | Westward..... | 510 | 6 |
| Thirty-eighth..... | Crossing..... | Halsted..... | 41 | 6 |
| Thirty-eighth..... | Crossing..... | Wood..... | 44 | 6 |
| Thirty-eighth..... | Calumet avenue..... | Eastward..... | 175 | 6 |
| Thirty-eighth..... | Indiana avenue..... | Prairie avenue..... | 525 | 6 |
| Thirty-eighth..... | State..... | La Salle..... | 875 | 6 |
| Thirty-eighth..... | Crossing..... | Dashiel..... | 70 | 6 |
| Thirty-eighth..... | Crossing..... | Stewart avenue..... | 40 | 6 |
| Thirty-first..... | Calumet avenue..... | Forrest..... | 208 | 24 |
| Thirty-fourth..... | Crossing..... | Dashiel..... | 30 | 6 |
| Thirty-fourth..... | Cottage Grove avenue..... | Rhodes avenue..... | 700 | 6 |
| Thirty-ninth..... | California ave..... | Leggett..... | 664 | 8 |
| Thirty-ninth..... | Pierson..... | Eastward..... | 615 | 8 |
| Thirty-second..... | Crossing..... | Shields avenue..... | 76 | 6 |
| Thirty-second..... | Mosprat..... | Ullman..... | 620 | 6 |
| Thirty-second..... | Auburn..... | Eastward..... | 78 | 6 |
| Thirty-second..... | Vermont..... | Hoyne avenue..... | 1,012 | 6 |
| Thirty-second..... | Crossing..... | Hanover..... | 66 | 6 |
| Thirty-second..... | Crossing..... | Dashiel..... | 30 | 6 |
| Thirty-seventh court..... | Crossing..... | Paulina..... | 45 | 6 |
| Thirty-seventh court..... | Crossing..... | Stewart avenue..... | 40 | 4 |
| Thirty-seventh..... | Tucker..... | Westward..... | 145 | 6 |
| Thirty-seventh..... | Crossing..... | Paulina..... | 75 | 8 |
| Thirty-seventh..... | Crossing..... | Wood..... | 46 | 8 |
| Thirty-sixth..... | Crossing..... | Wood..... | 76 | 6 |
| Thirty-sixth..... | Crossing..... | Paulina..... | 45 | 6 |

SOUTH DIVISION—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|---|---------------------------|------------------------|----------------------------|------------------------|
| Thirty-third court... | Crossing | Paulina | 45 | 6 |
| Thirty-third | 215 ft. E. of Robey | Eastward | 184 | 6 |
| Thirty-third | Robey | Eastward | 260 | 6 |
| Thirty-third | LaSalle | Wentworth avenue | 402 | 6 |
| Thirty-third | Wentworth avenue | Fifth avenue | 800 | 6 |
| Thirty-third | Portland avenue | Butler | 1,332 | 6 |
| Thirty-third | Parnell avenue | Wallace | 291 | 6 |
| Thirty-third | Wallace | Emerald avenue | 925 | 6 |
| Thirty-third | Emerald avenue | Halsted | 320 | 6 |
| Twenty-eighth | Crossing | Halsted | 41 | 6 |
| Twenty-fifth | Calumet avenue | Wallace | 6,037 | 24 |
| Twenty-ninth | Crossing | Halsted | 41 | 6 |
| Twenty-ninth | Wallace | Dashiel | 580 | 6 |
| Twenty-ninth | Dashiel | Emerald avenue | 260 | 6 |
| Twenty-ninth | Emerald avenue | Halsted | 260 | 6 |
| Twenty-sixth | Wallace | Lowe avenue | 363 | 24 |
| Vermont avenue | Thirty-first | Thirty-second | 625 | 6 |
| Vernon avenue | Thirty-ninth | Northward | 590 | 6 |
| Vincennes avenue | Crossing | Thirty-ninth | 20 | 8 |
| Wabash avenue | Crossing | Thirty-ninth | 22 | 8 |
| Wallace | Twenty-fifth | Twenty-sixth | 641 | 24 |
| Wallace | Crossing | Thirty-ninth | 40 | 6 |
| Ward avenue | Archer avenue | Thirty-ninth | 736 | 6 |
| Wentworth avenue | Crossing | Thirty-ninth | 13 | 8 |
| Western avenue | Archer avenue | Southward | 610 | 6 |
| Whitehouse place | Wentworth avenue | Portland avenue | 640 | 6 |
| Yorktown | Thirty-fourth | Thirty-fifth | 660 | 6 |
| Yorktown | Thirty-third | Northward | 440 | 6 |
| Total | | | 70,082 | |
| Add branch pipe for hydrants | | | 168 | 4 |
| Add branch pipe for hydrants | | | 996 | 6 |
| Total feet laid in South Division. | | | 71,196 | |

WEST DIVISION.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|--------------------------------|------------------------------|---------------------|----------------------------|------------------------|
| Alley east of Leavitt (First). | Van Buren | Southward | 100 | 4 |
| Adams | Homan | Eastward | 392 | 6 |
| Albany avenue | Twelfth | Thirteenth | 587 | 6 |
| Albany avenue | Twenty-second | Southward | 520 | 6 |
| Albany avenue | Kinzie | Northward | 450 | 6 |
| Albany avenue | Fulton | Northward | 558 | 6 |
| Armitage court | Crossing | Kedzie avenue | 18 | 4 |
| Augusta | California avenue | Eastward | 104 | 8 |
| Augusta | Western | Eastward | 70 | 8 |
| Austin avenue | West Forty-eighth | West Fiftieth | 1,292 | 6 |
| Avers avenue | Division | Northward | 419 | 6 |
| Binzo | Crossing | Elston | 12 | 6 |
| Blucher | Crossing | Lull | 12 | 4 |
| Bonney avenue | Twenty-eighth | Twenty-ninth | 646 | 6 |
| Bonney avenue | Crossing | Ogden | 30 | 6 |
| Bremen | Crossing | Leavitt | 86 | 6 |
| California avenue | Augusta | Southward | 822 | 8 |
| California avenue | Hirsch | Northward | 975 | 6 |
| California avenue | Laughton | Southward | 490 | 8 |
| California avenue | 520 ft. S. of Twelfth | Southward | 562 | 6 |
| California avenue | Ogden avenue | Nineteenth | 2,196 | 8 |
| California avenue | Nineteenth | Twenty-first | 608 | 8 |
| California avenue | Twenty-sixth | Southward | 990 | 6 |
| Campbell avenue | Fillmore | Grenshaw | 295 | 6 |
| Campbell avenue | Polk | Harvard | 810 | 6 |
| Campbell avenue | Crossing | Ogden | 56 | 6 |
| Canal street | E. and W. sides Sixteenth | Southward | 868 | 4 |
| Carroll avenue | Sixteenth | Albany avenue | 70 | 6 |
| Carroll avenue | 406 ft. W. of St. Louis | Westward | 52 | 6 |
| Central Park avenue | 293 ft. S. of Twenty-seventh | Southward | 242 | 8 |
| Central Park avenue | Twenty-second | Northward | 178 | 4 |
| Central Park avenue | Eighteenth | Northward | 1,924 | 8 |
| Central Park avenue | Crossing | Colorado | 70 | 8 |
| Central Park avenue | Twelfth | Fillmore | 688 | 8 |
| Central Park blvd. | Mead | Kedzie avenue | 392 | 6 |
| Central Park blvd. | Crossing | Kedzie avenue | 80 | 6 |
| Chicago avenue | Rockwell | California | 1,480 | 16 |
| Christiana | 450 ft. N. of Grant avenue | Northward | 580 | 6 |
| Colorado | Central Park avenue | Eastward | 810 | 8 |
| Commercial | Bloomingdale road | Clybourn place | 570 | 6 |
| Congress | Albany avenue | Kedzie avenue | 625 | 6 |
| Cortez | Crossing | California | 40 | 6 |
| Courtland | Clarkson | Humboldt boulevard | 978 | 8 |
| Courtland | Crossing | Kedzie avenue | 18 | 8 |
| Courtland court | Crossing | Kedzie avenue | 18 | 4 |
| Davis | Division | Potomac avenue | 550 | 6 |
| Devlin | Kinzie | Southward | 550 | 6 |
| Dickey avenue | Homan | Central Park avenue | 1,370 | 6 |
| Dickey avenue | Sheridan avenue | Westward | 667 | 6 |
| Douglas boulevard | Turner avenue | Westward | 582 | 6 |
| Douglas court | Crossing | California | 27 | 6 |
| Drake | Chicago avenue | Southward | 246 | 6 |
| Drake | Ohio | Southward | 232 | 6 |
| Eighteenth | St. Louis avenue | Trumbull avenue | 238 | 8 |
| Eighteenth | Rockwell | Eastward | 540 | 6 |

WEST DIVISION—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|--------------------------|---------------------------------|--------------------------|----------------------------|------------------------|
| Eighteenth..... | Crossing | California..... | 28 | 6 |
| Eighteenth..... | Crossing | Central Park avenue..... | 70 | 6 |
| Emily..... | Samuel..... | Wood..... | 258 | 6 |
| Emily..... | Rumsey..... | Paulina..... | 256 | 6 |
| Emily..... | Ashland..... | Rumsey..... | 248 | 6 |
| Emily..... | Paulina..... | Samuel..... | 258 | 6 |
| Fairview avenue..... | Diversy..... | Southward..... | 250 | 6 |
| Fifteenth..... | Crossing | Central Park avenue..... | 70 | 6 |
| Fifteenth..... | Rockwell..... | Eastward..... | 910 | 6 |
| Fifteenth..... | Crossing | California..... | 27 | 6 |
| Fifteenth..... | Washtenaw avenue..... | California..... | 673 | 6 |
| Fifteenth..... | Western avenue..... | Westward..... | 440 | 6 |
| Fiftieth (West)..... | Lake..... | Park avenue..... | 934 | 8 |
| Fifty-second..... | Lake..... | Northward..... | 1,327 | 8 |
| Flournoy..... | Crossing | Kedzie avenue..... | 68 | 6 |
| Fourteenth..... | 150 ft. W. of Wood..... | Westward..... | 50 | 6 |
| Fortieth place..... | Randolph..... | Southward..... | 174 | 6 |
| Fortieth place..... | Randolph..... | Park avenue..... | 544 | 6 |
| Fortieth (West)..... | Crossing | Washington..... | 28 | 8 |
| Forty-eighth (West)..... | Fulton..... | Park avenue..... | 300 | 8 |
| Forty-first (West)..... | Lake..... | Carroll avenue..... | 430 | 6 |
| Forty-sixth (West)..... | Huron..... | Chicago avenue..... | 700 | 4 |
| Francisco..... | Chicago avenue..... | Northward..... | 458 | 8 |
| Francisco..... | Crossing | Flournoy..... | 70 | 6 |
| Francisco..... | Monroe..... | Wilcox..... | 264 | 6 |
| Francisco..... | Adams..... | Jackson..... | 270 | 6 |
| Francisco..... | Twelfth..... | Fillmore..... | 624 | 6 |
| Francisco..... | Adams..... | Wilcox..... | 267 | 6 |
| Fullerton avenue..... | Leavitt..... | Hoyne avenue..... | 600 | 8 |
| Fullerton avenue..... | California avenue..... | Eastward..... | 326 | 8 |
| Fulton..... | Forty-fourth..... | Forty-sixth..... | 1,239 | 6 |
| Fulton..... | Fiftieth..... | Fifty-second..... | 1,311 | 6 |
| Fulton..... | Forty-eighth..... | Forty-ninth..... | 645 | 6 |
| Gloy..... | Crossing | Elston avenue..... | 12 | 6 |
| Grenshaw..... | Kedzie avenue..... | Westward..... | 553 | 6 |
| Hamlin avenue..... | 300 ft. N. of Twenty-fifth..... | Southward..... | 717 | 8 |
| Harding avenue..... | Huron..... | Chicago avenue..... | 663 | 6 |
| Harvard..... | Kedzie avenue..... | Eastward..... | 226 | 8 |
| Harrison..... | Connection with | Pumping works..... | 220 | 36 |
| Harrison..... | Halsted..... | Eastward..... | 75 | 24 |
| Harrison..... | Kedzie avenue..... | Westward..... | 100 | 24 |
| Hinman..... | Western avenue..... | Westward..... | 505 | 6 |
| Hirsch..... | Crossing | Western avenue..... | 53 | 8 |
| Hirsch..... | Crossing | Davis..... | 90 | 8 |
| Hirsch..... | Crossing | Oakley..... | 40 | 6 |
| Hoffman avenue..... | Franklin..... | Diversy..... | 672 | 6 |
| Homan avenue..... | Crossing | Twelfth..... | 104 | 8 |
| Homan avenue..... | Division..... | Northward..... | 740 | 8 |
| Homan avenue..... | Crossing | Colorado..... | 70 | 8 |
| Homan avenue..... | Crossing | Douglas boulevard..... | 26 | 8 |
| Hoyne avenue..... | Crossing | Van Horn..... | 72 | 8 |
| Hoyne avenue..... | Kosciusko..... | Northward..... | 120 | 6 |
| Hoyne avenue..... | Augusta..... | Iowa..... | 685 | 8 |
| Hoyne avenue..... | Crossing | Seventeenth..... | 80 | 8 |
| Hoyne avenue..... | Twelfth..... | Thirteenth..... | 553 | 6 |

WEST DIVISION—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|------------------------|-------------------------|--------------------|----------------------------|------------------------|
| Hull. | Twelfth. | Fillmore. | 655 | 6 |
| Humboldt blvd (S. S.) | Myrtle. | Westward. | 176 | 6 |
| Humboldt blvd (E. S.) | Shakespeare. | Southward. | 145 | 6 |
| Humboldt blvd (W. S.) | Armitage. | Northward. | 194 | 6 |
| Humboldt blvd (W. S.) | Crossing. | Courtland. | 110 | 6 |
| Humboldt blvd (N. S.) | Maplewood avenue. | Forrest avenue. | 333 | 6 |
| Humboldt blvd (S. S.) | Forrest avenue. | Fairview. | 333 | 6 |
| Humboldt blvd (S. S.) | Laurel. | Eastward. | 163 | 6 |
| Humboldt blvd (S. S.) | Hoffman. | Myrtle. | 383 | 6 |
| Humboldt blvd (S. S.) | Linden. | Eastward. | 150 | 6 |
| Indiana. | Forty-eighth. | Fiftieth. | 1,392 | 6 |
| Iowa. | Crossing. | California avenue. | 60 | 6 |
| Jane. | Hoyne. | Leavitt. | 626 | 6 |
| Jefferson. | Crossing. | Washington. | 80 | 4 |
| Jefferson. | Crossing. | Washington. | 90 | 8 |
| Judd. | Canal. | Eastward. | 300 | 6 |
| Kedzie avenue. | Central Park boulevard. | Ohio. | 750 | 12 |
| Kedzie avenue. | Twelfth. | Harrison. | 2,612 | 12 |
| Kedzie avenue. | Armitage. | Bloomington. | 1,217 | 8 |
| Kedzie avenue. | Armitage. | Northward. | 638 | 8 |
| Kedzie avenue. | Twenty-second. | Southward. | 399 | 12 |
| Kedzie avenue. | Twenty-fourth. | Twenty-sixth. | 1,420 | 12 |
| Kedzie avenue. | Crossing. | Armitage. | 90 | 8 |
| Kinzie st (N. of R.R.) | Forty-eighth. | Fiftieth. | 1,292 | 6 |
| Kinzie st (S. of R.R.) | Fortieth. | Forty-sixth. | 3,966 | 6 |
| Kosciusko. | Sobieski. | Robey. | 2,375 | 6 |
| Kuehl place. | Crossing. | Elston avenue. | 12 | 6 |
| Lake. | Forty-eighth. | Fifty-second. | 2,640 | 12 |
| Laughton. | Crossing. | California avenue. | 80 | 6 |
| Lawndale avenue. | Crossing. | Twelfth. | 62 | 6 |
| Lawndale avenue. | Ohio. | Northward. | 625 | 6 |
| Lawndale avenue. | Twenty-eighth. | Southward. | 515 | 8 |
| Lawndale avenue. | Thirtieth. | Southward. | 800 | 8 |
| Lawndale avenue. | Twenty-sixth. | Southward. | 316 | 8 |
| Leavitt. | Wabansia avenue. | Southward. | 210 | 8 |
| Leavitt. | Thirteenth. | Hastings. | 300 | 6 |
| Leavitt. | Hinman. | Twenty-first. | 267 | 8 |
| Leavitt. | Twenty-second. | Hinman. | 267 | 8 |
| Lexington. | Crossing. | Kedzie avenue. | 68 | 6 |
| Lexington. | California avenue. | Washtenaw avenue. | 612 | 6 |
| Lincoln. | Polk. | Taylor. | 800 | 6 |
| Lincoln. | Crossing. | Seventeenth. | 76 | 6 |
| Linwood. | Crossing. | California avenue. | 40 | 6 |
| Lister. | Robey. | Eastward. | 180 | 6 |
| Lister. | Kuehl place. | Southeast. | 478 | 6 |
| Lister. | Crossing. | Robey. | 60 | 6 |
| Loomis. | Twenty-second. | Southward. | 2,212 | 6 |
| Lubeck. | Crossing. | Western. | 36 | 6 |
| Lull. | Lull place. | Northward. | 325 | 4 |
| Mead. | Central Park boulevard. | Ohio. | 588 | 6 |
| Millard avenue. | Crossing. | Twelfth. | 62 | 6 |
| Monroe. | Homan avenue. | Eastward. | 190 | 6 |
| Nebraska. | Crossing. | Courtland. | 91 | 6 |
| Nineteenth. | Washtenaw. | Rockwell. | 650 | 8 |
| Nineteenth. | Crossing. | California avenue. | 74 | 8 |

WEST DIVISION—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet | Diameter in inches. |
|-------------------|----------------------------|-------------------|---------------------------|------------------------|
| Norwood... | Homan avenue | Sheridan avenue | 640 | 6 |
| Oakley avenue... | Crossing | Wabansia avenue | 54 | 6 |
| Oakley avenue | North avenue | Southward | 817 | 6 |
| Oakley avenue | Crossing | Wabansia avenue | 86 | 6 |
| Oakley avenue | Ems | Northward | 178 | 6 |
| Oakley avenue | Laughton | Parmelee | 885 | 6 |
| Oakley avenue | Crossing | Van Horn | 76 | 6 |
| Ogden avenue... | Bonney avenue | Hamlin avenue | 862 | 8 |
| Ohio | St. Louis avenue | Trumbull avenue | 820 | 12 |
| Ohio | Forty-eighth | Fiftieth | 1,292 | 6 |
| Ohio | Trumbull avenue | Homan avenue | 812 | 12 |
| Ohio | Mead | Kedzie avenue | 836 | 12 |
| Ohio | Lawndale avenue | Westward | 64 | 12 |
| Ohio | Central Park avenue | Drake | 828 | 12 |
| Ontario | Forty-eighth | Fiftieth | 1,292 | 6 |
| Park avenue | Fiftieth | Westward | 650 | 6 |
| Park avenue | Kedzie avenue | Westward | 400 | 6 |
| Park avenue | Crossing | Forty-eighth | 48 | 6 |
| Paulina | Crossing | Elston | 40 | 6 |
| Polk | Crossing | Kedzie avenue | 70 | 6 |
| Potomac avenue | Dania | Westward | 1,194 | 8 |
| Potomac avenue | Western | Dania | 284 | 8 |
| Pulaski | Crossing | Leavitt | 58 | 6 |
| Randolph | Forty-first | Fortieth place | 841 | 6 |
| Rebecca | Crossing | California avenue | 28 | 6 |
| Rebecca | Washtenaw | Westward | 455 | 6 |
| Rebecca | 300 ft. W. of Western ave. | Westward | 72 | 6 |
| Rice | Hogue | Westward | 800 | 6 |
| Richmond | Linwood | Chicago avenue | 850 | 6 |
| Ridgway avenue | Augusta | Northward | 920 | 6 |
| Ridgway avenue | Indiana | Ohio | 618 | 6 |
| Ridgway avenue | Crossing | North avenue | 65 | 6 |
| Robey | Crossing | Nineteenth | 80 | 6 |
| Robey | Thirteenth | Hastings | 280 | 6 |
| Rockwell | Hirsch | Potomac avenue | 680 | 12 |
| Rockwell | Crossing | Thomas | 50 | 12 |
| Rockwell | Crossing | Sixteenth | 43 | 6 |
| Rockwell | Crossing | Ogden | 102 | 6 |
| Rockwell | Fifteenth | Rebecca | 832 | 6 |
| St. Hedwig | Kosciusko | Northward | 275 | 6 |
| St. Louis avenue | Crossing | Colorado | 27 | 8 |
| St. Louis avenue | 245 ft. S. of Twenty-third | Southward | 100 | 8 |
| St. Louis avenue | Huron | Chicago avenue | 612 | 8 |
| St. Louis avenue | Crossing | Twelfth | 104 | 8 |
| St. Paul | Crossing | Western avenue | 60 | 6 |
| Sacramento avenue | Crossing | Thirty-ninth | 25 | 8 |
| Sawyer avenue | Crossing | Twelfth | 62 | 6 |
| Seymour avenue | Crossing | Thomas | 50 | 6 |
| Shakespeare | Crossing | Boulevard | 21 | 6 |
| Sheridan avenue | Twelfth | Northward | 616 | 6 |
| Sheridan avenue | North avenue | Dickey | 675 | 6 |
| Sixteenth | Crossing | California | 27 | 6 |
| Sixteenth | 300 ft. W. of Western ave. | Westward | 600 | 6 |
| Sixteenth | California avenue | Eastward | 166 | 6 |
| Sixteenth | Crossing | Canal | 150 | 4 |

WEST DIVISION—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|----------------------|---------------------------|--------------------------|----------------------------|------------------------|
| Sixteenth..... | Crossing..... | Central Park avenue..... | 70 | 8 |
| Sobieski..... | 94 feet N. of Kosciusko. | Northward..... | 150 | 6 |
| Spalding avenue.... | Ogden avenue..... | Nineteenth..... | 545 | 6 |
| Spalding avenue.... | Crossing..... | Twelfth..... | 104 | 8 |
| Spalding avenue.... | Twelfth..... | Southward..... | 615 | 6 |
| Springfield avenue.. | 180 ft. S. of Glenview .. | Northward..... | 300 | 8 |
| Springfield avenue.. | Glenview..... | Northward..... | 700 | 8 |
| Superior street..... | Crossing..... | Western avenue..... | 90 | 6 |
| Superior street..... | Leavitt..... | Oakley avenue..... | 600 | 6 |
| Talman avenue..... | Leavitt..... | Ogden..... | 102 | 6 |
| Taylor..... | Leavitt..... | Campbell avenue..... | 27 | 6 |
| Taylor..... | Leavitt..... | Kedzie avenue..... | 68 | 6 |
| Thirteenth place.... | Leavitt..... | California avenue..... | 27 | 6 |
| Thomas..... | Leavitt..... | California avenue..... | 40 | 6 |
| Thompson..... | Leavitt..... | Oakley avenue..... | 110 | 6 |
| Thompson..... | Leavitt..... | Shober..... | 104 | 6 |
| Thompson..... | Leavitt..... | California avenue..... | 40 | 6 |
| Thompson..... | Leavitt..... | Seymour..... | 48 | 6 |
| Thompson..... | Leavitt..... | Davis..... | 116 | 6 |
| Thompson..... | Leavitt..... | Western avenue..... | 90 | 6 |
| Troy avenue..... | Leavitt..... | Twelfth..... | 58 | 6 |
| Trumbull avenue.... | Ohio..... | Northward..... | 607 | 6 |
| Trumbull avenue.... | Eighteenth..... | Northward..... | 472 | 6 |
| Turner avenue..... | Twelfth..... | Douglas boulevard..... | 1,188 | 6 |
| Turner avenue..... | Ogden avenue..... | Southward..... | 550 | 6 |
| Turner avenue..... | Crossing..... | Twelfth..... | 62 | 6 |
| Turner avenue..... | Twenty-third..... | Twenty-fourth..... | 992 | 6 |
| Turner avenue..... | Twenty-second..... | Twenty-third..... | 600 | 6 |
| Twelfth..... | Kedzie avenue..... | Westward..... | 8,861 | 12 |
| Twentieth..... | Crossing..... | California avenue..... | 678 | 6 |
| Twenty-fifth place.. | California avenue..... | Westward..... | 160 | 6 |
| Twenty-fifth..... | Crossing..... | Clifton Park avenue..... | 70 | 6 |
| Twenty-fifth..... | Hamlin avenue..... | Bonney avenue..... | 880 | 6 |
| Twenty-first..... | Crossing..... | California avenue..... | 44 | 6 |
| Twenty-first..... | Crossing..... | Jefferson..... | 36 | 6 |
| Twenty-fourth..... | Crossing..... | Clifton Park..... | 70 | 6 |
| Twenty-second (S. S) | St. Louis avenue..... | Lawndale avenue..... | 1,888 | 6 |
| Twenty-third..... | Turner avenue..... | Homan avenue..... | 295 | 6 |
| Twenty-third..... | Lawndale avenue..... | Hamlin avenue..... | 640 | 6 |
| Twenty-third..... | Crossing..... | Clifton Park avenue..... | 43 | 6 |
| Wabansia avenue.... | Crossing..... | Western avenue..... | 60 | 6 |
| Wabansia avenue.... | Crossing..... | Western avenue..... | 90 | 8 |
| Washington..... | West Fortieth..... | Eastward..... | 1,292 | 6 |
| Washington..... | Crossing..... | Jefferson..... | 70 | 8 |
| Washington..... | Crossing..... | Jefferson..... | 70 | 4 |
| Washington (N. S.).. | Clinton..... | Westward..... | 166 | 8 |
| Washington (S. S.).. | Clinton..... | Westward..... | 191 | 6 |
| Washtenaw avenue.. | Nineteenth..... | Twentieth..... | 315 | 8 |
| Washtenaw avenue.. | Van Buren..... | Congress..... | 860 | 6 |
| Washtenaw avenue.. | Crossing..... | Lexington..... | 45 | 6 |
| Washtenaw avenue.. | Thomas..... | Southward..... | 90 | 8 |
| Washtenaw avenue.. | Werder..... | Division..... | 288 | 8 |
| Washtenaw avenue.. | Hirsch..... | Potomac avenue..... | 662 | 8 |
| Webster avenue..... | Crossing..... | Elston..... | 60 | 8 |
| Western avenue.... | Diversy avenue..... | Southward..... | 295 | 8 |

WEST DIVISION—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|---------------------------------------|--------------------|-----------------|----------------------------|------------------------|
| Whipple..... | Twenty-second..... | Southward..... | 496 | 6 |
| Whipple..... | Twenty-sixth..... | Southward..... | 1,825 | 6 |
| Wood..... | Seventeenth..... | Eighteenth..... | 300 | 8 |
| Total..... | | | 118,287 | |
| Add branch pipe for hydrants..... | | | 98 | 4 |
| Add branch pipe for hydrants. W..... | | | 8,848 | 6 |
| Total feet laid in West Division..... | | | 121,681 | |

HYDE PARK DISTRICT.

| STREET. | FROM | TO | Length of Pipe in feet | Diameter in inches |
|----------------------------|--------------------------------------|--------------------------------------|---------------------------|-----------------------|
| Alley east of Drexel blvd. | Forty-second | Forty-third | 418 | 6 |
| Alley east of Drexel blvd. | Forty-third | Southward | 354 | 6 |
| Alley east of Drexel blvd. | Fiftieth | Northward | 82 | 6 |
| Alley east of Drexel blvd. | Forty-fourth | Northward | 812 | 6 |
| Alley west of Grand blvd. | Thirty-ninth | Southward | 375 | 6 |
| Alley west of Grand blvd. | Forty-third | Forty-fourth | 655 | 6 |
| Adams avenue | Seventy-ninth | Eighty-first | 1,323 | 6 |
| Anthony avenue | Crossing | Ninety-third | 48 | 8 |
| Anthony avenue | Eightieth | Jefferson avenue | 890 | 8 |
| Avenue C | Sixty-ninth | Seventieth | 682 | 6 |
| Avenue I | Ninety-eighth | Hundredth | 1,380 | 6 |
| Avenue K | Ninety-fifth | Hundred and seventh | 8,078 | 12 |
| Avenue L | Hundredth | Hundred and first | 676 | 6 |
| Avenue L | Ninety-seventh | Ninety-eighth | 645 | 6 |
| Avenue L | Hundred and fifth | Hundred and sixth | 647 | 6 |
| Avenue M | Hundred and sixth | Hundred and eighth | 1,310 | 6 |
| Avenue N | Hundred and sixth | Hundred and eighth | 1,324 | 6 |
| Avenue O | Hundred and sixth | Hundred and eighth | 1,319 | 6 |
| Avenue P | Hundred and seventh | Hundred and eighth | 688 | 6 |
| Boulevard place | Vincennes avenue | Grand boulevard | 675 | 6 |
| Bowen avenue | Lake avenue | Berkeley avenue | 260 | 6 |
| Buffalo avenue | Crossing | Eighty-sixth | 23 | 6 |
| Buffalo avenue | Eighty-seventh | Ninety-second | 8,328 | 6 |
| Buffalo avenue | Eighty-third | Eighty-sixth | 2,235 | 6 |
| Burnside avenue | Langley avenue | St. Lawrence avenue | 795 | 6 |
| Calumet avenue | Fiftieth | Fifty-first | 668 | 6 |
| Champlain avenue | Sixtieth | Sixty-first | 628 | 6 |
| Chestnut | Crossing | Lake avenue | 45 | 6 |
| Coles avenue | Eightieth | Eighty-first | 681 | 6 |
| Cregier avenue | Seventy-first | Seventy-second | 681 | 6 |
| Curtis avenue | Hundred and tenth | Hundred and eleventh | 1,135 | 6 |
| Curtis avenue | 291 ft. N. of Hundred and thirteenth | 529 ft. S. of Hundred and thirteenth | 886 | 6 |
| Drexel avenue | Fifty-sixth | Fifty-eighth | 1,470 | 6 |
| Drexel avenue | Ninety-second | Ninety-third | 625 | 6 |
| Drexel avenue | Crossing | Sixty-third | 80 | 6 |
| Drexel avenue | Seventy-first | South Chicago avenue | 548 | 6 |
| Eightieth court | Houston avenue | Westward | 313 | 6 |
| Eightieth | Madison avenue | Washington avenue | 947 | 6 |
| Eightieth | Russell avenue | Houston avenue | 984 | 6 |
| Eightieth | Crossing | Anthony avenue | 72 | 8 |
| Eightieth | Railroad avenue | Houston avenue | 311 | 6 |
| Eighty-eighth | Crossing | Exchange avenue | 82 | 6 |
| Escanaba avenue | Eighty-seventh | Eighty-ninth | 1,356 | 6 |
| Escanaba avenue | Crossing | Ninety-third | 50 | 8 |
| Euclid avenue | Seventy-first | Seventy-third | 1,842 | 6 |
| Evans avenue | Forty-third | Forty-fourth | 663 | 6 |
| Everett avenue | Fifty-fourth | Fifty-sixth | 1,100 | 6 |
| Ewing avenue | Hundredth | Hundred and sixth | 4,085 | 6 |
| Exchange avenue | Eighty-seventh | Eighty-eighth | 672 | 6 |
| Exchange avenue | Ninety-fifth | Notre Dame avenue | 4,605 | 6 |
| Fiftieth | Crossing | Vincennes avenue | 58 | 6 |
| Fiftieth | Crossing | Michigan avenue | 140 | 6 |
| Fiftieth | Ellis avenue | Westward | 365 | 6 |
| Fifty-eighth | Crossing | Jackson avenue | 68 | 6 |
| Fifty-fifth | Kimbark avenue | Eastward | 217 | 6 |

HYDE PARK DISTRICT—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet | Diameter in inches. |
|-------------------------|---------------------------|---------------------------|---------------------------|------------------------|
| Fifty-fifth..... | Ingleside avenue..... | Drexel avenue..... | 326 | 6 |
| Fifty-fourth..... | Crossing..... | Lake avenue..... | 45 | 6 |
| Fifty-fourth..... | Drexel avenue..... | Cottage Grove avenue..... | 616 | 6 |
| Fifty-ninth..... | Crossing..... | Jackson avenue..... | 68 | 6 |
| Fifty-ninth..... | Indiana avenue..... | Prairie avenue..... | 442 | 6 |
| Fifty-second..... | Crossing..... | Lake avenue..... | 43 | 6 |
| Fifty-sixth..... | East End avenue..... | Everett avenue..... | 390 | 6 |
| Fifty-sixth..... | Drexel avenue..... | Jackson avenue..... | 340 | 6 |
| Fifty-third..... | Drexel avenue..... | Cottage Grove avenue..... | 615 | 6 |
| Fifty-third..... | Lake avenue..... | Monroe avenue..... | 1,614 | 8 |
| Forrestville avenue. | Forty-third..... | Forty-fourth..... | 640 | 6 |
| Forty-eighth..... | Crossing..... | Michigan avenue..... | 140 | 6 |
| Forty-eighth..... | Crossing..... | Vincennes avenue..... | 68 | 6 |
| Forty-fifth..... | Crossing..... | Michigan avenue..... | 142 | 6 |
| Forty-fifth..... | Vincennes avenue..... | Grand boulevard..... | 688 | 6 |
| Forty-fourth..... | Crossing..... | Evans avenue..... | 206 | 6 |
| Forty-fourth..... | Crossing..... | Michigan avenue..... | 142 | 6 |
| Forty-fourth..... | Crossing..... | Langley avenue..... | 76 | 6 |
| Forty-ninth..... | Crossing..... | Michigan avenue..... | 140 | 6 |
| Forty-ninth..... | Crossing..... | Vincennes avenue..... | 68 | 6 |
| Forty-second..... | Wabash avenue..... | State..... | 445 | 6 |
| Forty-seventh court. | Cottage Grove avenue..... | Eastward..... | 304 | 6 |
| Forty-sixth..... | Vincennes avenue..... | St. Lawrence avenue..... | 687 | 6 |
| Forty-sixth..... | Crossing..... | Michigan avenue..... | 142 | 6 |
| Forty-third..... | Lake avenue..... | I. C. R. R..... | 525 | 6 |
| Free..... | Hundred and eleventh..... | Northward..... | 314 | 6 |
| Grace avenue..... | Crossing..... | Sixty-third..... | 80 | 6 |
| Grand boulevard..... | Forty-seventh..... | Southward..... | 655 | 6 |
| Grand boulevard..... | Forty-fifth..... | Southward..... | 177 | 6 |
| Green Bay avenue..... | Crossing..... | Eighty-ninth..... | 52 | 6 |
| Green Bay avenue..... | Eighty-third..... | Eighty-sixth..... | 1,014 | 6 |
| Greenwood avenue..... | Sixty-third..... | Northward..... | 203 | 6 |
| Greenwood avenue..... | Crossing..... | Sixty-third..... | 36 | 6 |
| Eighty-eighth..... | Crossing..... | Commercial avenue..... | 36 | 6 |
| Eighty-eighth..... | Crossing..... | Buffalo avenue..... | 84 | 6 |
| Eighty-eighth..... | Crossing..... | Erie avenue..... | 72 | 6 |
| Eighty-eighth..... | Crossing..... | Mackinaw avenue..... | 51 | 6 |
| Eighty-fifth..... | Ontario avenue..... | Superior avenue..... | 330 | 8 |
| Eighty-first court..... | Commercial avenue..... | Eastward..... | 290 | 6 |
| Eighty-first..... | Stony Island avenue..... | Madison avenue..... | 1,307 | 6 |
| Eighty-first..... | Railroad avenue..... | Houston avenue..... | 341 | 8 |
| Eighty-first..... | Commercial avenue..... | Eastward..... | 290 | 6 |
| Eighty-ninth..... | Crossing..... | Commercial avenue..... | 92 | 6 |
| Eighty-ninth..... | Crossing..... | Buffalo avenue..... | 84 | 6 |
| Eighty-ninth..... | Crossing..... | Erie avenue..... | 70 | 6 |
| Eighty-ninth..... | Superior avenue..... | Ontario avenue..... | 352 | 6 |
| Eighty-ninth..... | Green Bay avenue..... | The Strand..... | 357 | 6 |
| Eighty-ninth..... | Crossing..... | Mackinaw avenue..... | 80 | 6 |
| Eighty-ninth..... | Crossing..... | Exchange avenue..... | 82 | 6 |
| Eighty-second..... | Duncan avenue..... | Reynolds avenue..... | 338 | 6 |
| Eighty-second..... | Commercial avenue..... | Eastward..... | 292 | 6 |
| Eighty-seventh..... | Crossing..... | Commercial avenue..... | 92 | 6 |
| Eighty-seventh..... | Crossing..... | Superior avenue..... | 148 | 8 |
| Eighty-seventh..... | Crossing..... | Exchange avenue..... | 83 | 6 |
| Eighty-seventh..... | Crossing..... | Exchange avenue..... | 84 | 6 |

HYDE PARK DISTRICT—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|------------------------------|---|----------------------------|----------------------------|------------------------|
| Eighty-seventh | Crossing | Mackinaw avenue | 51 | 6 |
| Eighty-seventh | Crossing | Erie avenue | 72 | 6 |
| Eighty-sixth | Superior avenue | Green Bay avenue | 992 | 6 |
| Eighty third place | Railroad avenue | Illinois avenue | 238 | 8 |
| Ellis avenue | Seventy-fifth | Seventy-sixth | 669 | 6 |
| Ellis avenue | Crossing | Sixty-third | 24 | 6 |
| Ellis avenue | Ninety-second | Ninety-third | 625 | 6 |
| Ellis avenue | 210 ft. n. of Fifty-sixth | Fifty-eighth | 1,559 | 6 |
| Ellington avenue | Seventy-second | Seventy-third | 620 | 6 |
| Erie avenue | Eighty-seventh | Ninety-first | 2,648 | 6 |
| Erie avenue | Ninety-first | Ninety-third | 1,286 | 6 |
| Erie avenue | Crossing | Eighty-seventh | 48 | 6 |
| Erie avenue | Crossing | Ninety-first | 58 | 6 |
| Escanaba avenue | Eighty-ninth | Ninety-first | 1,346 | 6 |
| Harrison avenue | Ninety-second | Ninety-third | 625 | 6 |
| Hartwell avenue | Sixty-sixth | Sixty-ninth | 783 | 6 |
| Hegewisch avenue | Hundred and thirty-second | Southward | 3,016 | 6 |
| Hegewisch avenue | Eightieth | Eighty-first | 683 | 6 |
| Hibbard avenue | Fifty-third | Northward | 218 | 6 |
| Hope avenue | Crossing | Sixty-third | 70 | 6 |
| Houston avenue | Eightieth | Eighty-first | 675 | 6 |
| Howard avenue | Hegewisch avenue | Eastward | 121 | 6 |
| Illinois avenue | Eighty-third place | Ontario avenue | 1,350 | 8 |
| Indiana avenue | Hundred and thirteenth | Northward | 267 | 6 |
| Indiana avenue | 409 ft. N. of Hundred and tenth | Southward | 1,137 | 6 |
| Indiana avenue | Hundred and eighth | Southward | 375 | 6 |
| Indiana avenue | Hundred and thirteenth | Southward | 510 | 6 |
| Ingleside avenue | Fifty-fifth | Fifty-sixth | 466 | 6 |
| Ingleside avenue | Fifty-sixth | Southward | 1,044 | 6 |
| Jackson avenue | Crossing | Sixty-third | 48 | 6 |
| Jackson avenue | Fifty-fourth | Southward | 124 | 6 |
| Jackson avenue | Fifty-eighth | Fifty-ninth | 900 | 6 |
| Jackson avenue | Fifty-seventh | Northward | 2,295 | 6 |
| Jefferson avenue | Seventy-fourth | Seventy-fifth | 625 | 6 |
| Jefferson avenue | Crossing | Ninety-third | 24 | 6 |
| Jefferson avenue | Ninety-second | Ninety-third | 663 | 6 |
| Jefferson avenue | Seventy-ninth | Eighty-first | 1,232 | 6 |
| Jefferson avenue | Crossing | Seventy-ninth | 90 | 8 |
| Kenwood court | Euclid avenue | Jeffery avenue | 504 | 6 |
| Kenwood terrace | Jeffery avenue | Ellington avenue | 1,015 | 6 |
| Kinney avenue | Seventy-third | Southward | 829 | 6 |
| Lake avenue | Fifty-first | Fifty-second | 320 | 12 |
| Langley avenue | Seventy-second | Seventy-fifth | 2,013 | 6 |
| Langley avenue | Forty-third | Forty-fourth | 665 | 6 |
| Langley avenue | Forty-fourth | Forty-fifth | 668 | 6 |
| Mackinaw avenue | Eighty-seventh | Harbor avenue | 3,276 | 8 |
| Madison avenue | Sixty-third | Sixty-sixth | 1,968 | 6 |
| Madison avenue | Seventy-ninth | Eighty-first | 1,328 | 6 |
| Madison avenue | Crossing | Sixty-third | 48 | 6 |
| Manistee avenue | Crossing | Ninetieth | 85 | 6 |
| Manistee avenue | Crossing | Ninety third | 83 | 6 |
| Marquette avenue | Crossing | Ninety-third | 83 | 6 |
| Michigan avenue | Forty-seventh | Fifty-first | 2,657 | 6 |
| Michigan avenue | Sixty-sixth | Sixty-seventh | 753 | 6 |
| Muskegon avenue | Crossing | Ninetieth | 87 | 6 |

HYDE PARK DISTRICT—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|------------------------------|-----------------------------|----------------------------|----------------------------|------------------------|
| Muskegon avenue. | Crossing | Ninety-third. | 60 | 6 |
| Ninetieth | The Strand. | Manistee avenue. | 4,572 | 8 |
| Ninety-eighth | Avenue K. | Avenue L. | 372 | 8 |
| Ninety-eighth | Avenue K. | Avenue H. | 1,004 | 8 |
| Ninety-fifth | Avenue L. | Ewing avenue | 610 | 12 |
| Ninety-fifth | Stony Island avenue. | C. & W. I. R. R. | 457 | 8 |
| Ninety-first | Green Bay avenue | Escanaba avenue. | 8,458 | 6 |
| Ninety-fourth | Washington avenue | Stony Island avenue. | 848 | 6 |
| Ninety-third | Cottage Grove avenue | Greenwood avenue. | 1,978 | 6 |
| Ninety-third | Stony Island avenue. | Westward. | 724 | 6 |
| Oakland crescent. | Ellis avenue. | Forty-first. | 300 | 6 |
| Oglesby avenue. | Connection at Pumping Works | | 272 | 30 |
| Hundredth | Avenue K. | Westward. | 332 | 6 |
| Hundred and eighth | Avenue O. | Avenue P. | 333 | 6 |
| Hundred and eleventh | State | Indiana avenue | 1,335 | 8 |
| Hundred and eleventh place | State | Michigan avenue. | 558 | 8 |
| Hundred and first | Avenue L. | Westward. | 226 | 6 |
| Hundred and sixth | Avenue K. | Avenue O. | 1,365 | 8 |
| Hundred and sixth | Avenue K. | Avenue I. | 306 | 8 |
| Hundred and sixteenth | Michigan avenue. | State | 454 | 6 |
| Hundred and seventeenth | Michigan avenue. | State | 518 | 6 |
| Hundred and tenth | State | Indiana avenue. | 1,845 | 6 |
| Hundred and twelfth place | Michigan avenue. | State | 380 | 6 |
| Hundred and thirteenth place | Michigan avenue. | State | 525 | 6 |
| Hundred and thirteenth | Crossing | I. C. R. R. | 34 | 6 |
| Hundred and thirteenth | Indiana avenue | State | 1,262 | 6 |
| Hundred and thirty-fourth. | South Chicago avenue | Superior avenue. | 592 | 4 |
| Hundred and thirty-fifth | South Chicago avenue | Superior avenue. | 600 | 4 |
| Hundred and thirty-second | Hegewisch avenue | South Chicago avenue. | 300 | 4 |
| Hundred and thirty-third | South Chicago avenue | Superior avenue | 592 | 4 |
| Ontario avenue. | Eighty-fifth | Illinois avenue. | 60 | 8 |
| Ontario avenue. | Ninety-third. | Southward | 524 | 6 |
| Ontario avenue | Eighty-fifth | Southward | 598 | 6 |
| Park End avenue. | Sixtieth. | Sixty-first | 619 | 6 |
| Paxton avenue. | Seventy-second | Seventy-third. | 620 | 6 |
| Prairie avenue. | Fifty-first | Fifty-second. | 624 | 6 |
| Prairie avenue. | Fifty-ninth. | Southward. | 342 | 6 |
| Rhodes avenue. | Seventy-third. | Seventy-fourth. | 640 | 6 |
| Robinson avenue | Starr avenue. | Grace avenue. | 425 | 6 |
| Russell avenue | Eightieth | Eighty-first | 697 | 6 |
| St. Lawrence avenue | Seventy-first. | Seventy-second. | 675 | 6 |
| St. Lawrence avenue | Seventy-second. | Seventy-fourth. | 1,627 | 6 |
| Saginaw avenue. | Crossing | Ninety-third. | 83 | 6 |
| Sawyer avenue. | Michigan avenue. | State | 517 | 6 |
| Starr avenue. | Sixty-fourth | Robinson avenue | 738 | 6 |
| State avenue. | Hundred and tenth. | Northward. | 405 | 6 |
| Stony Island avenue. | 100 ft. S. of Eightieth | 178 ft. S. of Eighty-first | 715 | 12 |
| Stony Island avenue. | Seventy-ninth | Southward. | 910 | 12 |
| Stony Island avenue. | Ninety-third | Ninety-fifth | 1,328 | 8 |
| Stony Island avenue. | Sixty-seventh | Sixty-eighth. | 650 | 36 |
| Storms avenue. | Seventy-ninth | P., F. W. & C. Ry. | 4,372 | 6 |
| Seventy-eighth. | 412 ft. E. of Bond avenue. | Railroad avenue | 1,368 | 6 |
| Seventy-first | Avenue C. | Fuad avenue. | 845 | 6 |
| Seventy-second. | Rhodes avenue | I. C. R. R. | 608 | 6 |
| Seventy-third | Madison ave | I. C. R. R. | 912 | 6 |

HYDE PARK DISTRICT—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|--|-----------------------------------|---------------------------|----------------------------|------------------------|
| Seventy-third | Champlain avenue | St. Lawrence avenue .. . | 840 | 8 |
| Seventy-third | Stony Island avenue..... | Eastward..... | 448 | 8 |
| Seventy-third | Ellington avenue..... | Paxton..... | 380 | 8 |
| Seventy-ninth | Duncan avenue .. . | Reynolds avenue..... | 451 | 12 |
| Seventy-ninth | Jefferson avenue | Madison avenue..... | 646 | 8 |
| Seventy-ninth place. | Railroad avenue | Coles avenue | 654 | 6 |
| Sixth avenue..... | Ninety-eighth | Hundredth..... | 1,380 | 6 |
| Sixty-fourth..... | Connection at Pumping Works | | 100 | 24 |
| Sixty-eighth..... | Stony Island avenue..... | Eastward | 5,288 | 86 |
| Sixty-eighth..... | Connection at Pumping Works | | 50 | 16 |
| Sixty-fourth..... | Crossing | Starr avenue..... | 70 | 6 |
| Sixty ninth..... | State | Indiana avenue..... | 1,275 | 6 |
| Sixty-third..... | Stony Island avenue..... | Oglesby avenue..... | 1,720 | 8 |
| Sixty-second | Madison avenue..... | I. C. R. R | 282 | 6 |
| Sixty-second | Oglesby avenue..... | Sheridan avenue..... | 446 | 6 |
| Sixty-seventh..... | Crossing | State | 112 | 24 |
| Sixty-seventh..... | Cottage Grove avenue..... | State | 5,268 | 30 |
| Sixty-seventh | Stony Island avenue..... | Cottage Grove avenue..... | 5,287 | 36 |
| South Chicago avenue. | Cottage Grove avenue..... | Southeastward..... | 2,054 | 8 |
| South Park avenue.. | Fifty-first | Fifty-second..... | 684 | 6 |
| South Park avenue.. | Crossing | Sixty-seventh..... | 44 | 24 |
| Superior avenue.... | Eighty-fifth | Eighty-ninth..... | 2,560 | 8 |
| Superior avenue.... | Eighty-third..... | Eighty-fifth | 1,645 | 6 |
| Union | State | Michigan avenue..... | 650 | 6 |
| Vincennes avenue.. | Forty-eighth..... | Fifty-first | 2,277 | 6 |
| Vincennes avenue.. | Sixty-fifth | Southward | 269 | 6 |
| Vincennes avenue.. | Forty-first | Bowen avenue..... | 348 | 6 |
| Wabash avenue..... | Sixty-sixth | Sixty-seventh..... | 753 | 6 |
| Wabash avenue..... | Hundred and tenth..... | Northward | 416 | 6 |
| Washington avenue. | Eightieth..... | Eighty-first..... | 644 | 6 |
| Washington avenue. | Ninety-second..... | Ninety-fourth..... | 1,574 | 6 |
| Washington avenue. | Crossing | Ninety-third..... | 70 | 6 |
| Wharton avenue.... | Crossing | Sixty-third..... | 24 | 6 |
| Woodlawn avenue .. | Seventy-second | Seventy-third..... | 818 | 6 |
| Total | | | 199,154 | |
| Add branch pipe for hydrants | | | 492 | 4 |
| Add branch pipe for hydrants | | | 4,920 | 6 |
| Total feet laid in Hyde Park District..... | | | 208,966 | |

LAKE VIEW DISTRICT.

| STREET. | FROM | TO | Length of Pipe in feet | Diameter in inches. |
|------------------|--------------------------------|-------------------|---------------------------|------------------------|
| Aberdeen | Sheffield avenue | Westward | 1,312 | 6 |
| Addison avenue | Crossing | Sheffield | 84 | 6 |
| Addison avenue | Evanston avenue | Lake Shore drive | 900 | 6 |
| Addison avenue | Crossing | Pine Grove avenue | 72 | 6 |
| Ashland avenue | Lawrence avenue | Northward | 1,612 | 6 |
| Argyle | Sheffield avenue | Eastward | 803 | 6 |
| Baxter | North crossing | Roscoe | 42 | 6 |
| Belle Plaine | West crossing | Perry | 48 | 6 |
| Belle Plaine | Perry | Southport avenue | 899 | 6 |
| Belle Plaine | Crossing | Ashland avenue | 72 | 6 |
| Belmont avenue | Western avenue | Westward | 940 | 6 |
| Berteau | Crossing | Ashland avenue | 76 | 6 |
| Boardman place | Crossing | Southport avenue | 48 | 6 |
| Bradley place | Halsted | Rokeyby | 588 | 6 |
| Burling | Crossing | Wrightwood avenue | 50 | 6 |
| Byron | Halsted | Grace | 1,390 | 6 |
| Byron | Crossing | Grace | 71 | 6 |
| Catalpa | Southport avenue | Perry | 899 | 6 |
| Clarence avenue | Grace | Byron | 524 | 6 |
| Clark | Belmont avenue | Noble | 710 | 6 |
| Clifton | Crossing | Roscoe | 41 | 6 |
| Clifton | Belmont avenue | Noble | 660 | 6 |
| Commercial | Crossing | Lincoln avenue | 52 | 6 |
| Cornelia | Crossing | Ashland avenue | 72 | 6 |
| Cornelia | Reta | Halsted | 286 | 6 |
| Cornelia | Pine Grove avenue | Eastward | 472 | 6 |
| Cornelia | Crossing | Lincoln | 51 | 6 |
| Cosgrove | Clark | Perry | 608 | 6 |
| Cosgrove | Crossing | Ashland avenue | 72 | 6 |
| Deming court | 300 ft. e. of Clark | Eastward | 566 | 6 |
| Dunning | Crossing | Southport avenue | 48 | 6 |
| Early | Evanston avenue | Charlton avenue | 363 | 6 |
| Elaine place | Roscoe | Cornelia | 637 | 6 |
| Evanston avenue | Crossing | N. Fifty-ninth | 55 | 6 |
| Fletcher | West crossing | Clark | 24 | 4 |
| Fletcher | Halsted | Eastward | 185 | 6 |
| Foster | Lincoln avenue | Westward | 1,639 | 6 |
| Gary place | Crossing | Pine Grove avenue | 40 | 6 |
| Gordon terrace | Halsted | Eastward | 500 | 6 |
| Goodwin | Ardmore | Taylor | 935 | 6 |
| Goodwin | Thorndale avenue | Grand | 1,695 | 6 |
| Goodwin | Crossing | Thorndale avenue | 68 | 6 |
| Grace | Halsted | Eastward | 1,277 | 6 |
| Grace | Crossing | Kohlsaat | 48 | 6 |
| Grace | Crossing | Southport avenue | 56 | 6 |
| Hampden court | Crossing | Deming court | 24 | 6 |
| Hazel | Crossing | Sulzer avenue | 70 | 6 |
| Hazel | Crossing | Lakeside avenue | 74 | 6 |
| Herndon | Wrightwood avenue | Mariana | 668 | 6 |
| High | 390 ft. n. of Fullerton avenue | Northward | 176 | 4 |
| Jansen avenue | Nellie | Grace | 709 | 6 |
| Lake Side avenue | Sheffield avenue | Eastward | 1,217 | 6 |
| Lake View avenue | Diversy | Wrightwood avenue | 580 | 6 |
| Lake View avenue | Crossing | Fullerton avenue | 84 | 6 |
| Larrabee | Frederick | Diversy | 480 | 6 |

LAKE VIEW DISTRICT—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|------------------------|---------------------------|------------------------|----------------------------|------------------------|
| Lawrence avenue... | Garfield avenue..... | Westward..... | 258 | 8 |
| Lincoln avenue... | Webster avenue..... | Northward..... | 1,775 | 8 |
| Lyman avenue..... | Sunnyside avenue..... | Northward..... | 366 | 6 |
| Mariana..... | Crossing..... | Racine avenue..... | 48 | 6 |
| Mariana..... | Crossing..... | Southport avenue..... | 48 | 6 |
| Mariana..... | Crossing..... | Florence avenue..... | 51 | 6 |
| May..... | Crossing..... | Wellington..... | 48 | 6 |
| Mayfair..... | Southport avenue..... | Westward..... | 898 | 6 |
| Mayfair..... | Crossing..... | Perry..... | 48 | 6 |
| Nellie avenue..... | Crossing..... | Ashland avenue..... | 72 | 6 |
| Nellie avenue..... | Evanston avenue..... | Eastward..... | 979 | 6 |
| Nelson..... | Ashland avenue..... | Perry..... | 627 | 6 |
| Nelson..... | Racine avenue..... | C. & E. R. R..... | 653 | 6 |
| Noble avenue..... | Seminary avenue..... | Racine avenue..... | 647 | 6 |
| Noble avenue..... | Seminary avenue..... | Eastward..... | 111 | 6 |
| North Fifty-ninth..... | Ashland avenue..... | C. & N.-W. Ry..... | 1,269 | 6 |
| North Fifty-ninth..... | Evanston avenue..... | Goodwin..... | 982 | 8 |
| North Fifty-ninth..... | Evanston avenue..... | Eastward..... | 980 | 8 |
| North Fifty-ninth..... | Goodwin..... | Eastward..... | 446 | 8 |
| Oakdale avenue..... | Lake View avenue..... | Westward..... | 609 | 6 |
| Oakdale avenue..... | Halsted..... | Sheffield avenue..... | 1,380 | 6 |
| Oakdale avenue..... | Clark..... | Evanston avenue..... | 724 | 6 |
| Otto..... | Halsted..... | Westward..... | 142 | 6 |
| Paulina..... | Nellie avenue..... | Grace..... | 675 | 6 |
| Perry..... | Lincoln avenue..... | Southward..... | 582 | 6 |
| Perry..... | Cosgrove..... | Sulzer avenue..... | 616 | 6 |
| Perry..... | Graceland..... | Northward..... | 1,258 | 6 |
| Pine Grove avenue..... | Crossing..... | Nellie..... | 66 | 6 |
| Pine Grove avenue..... | Crossing..... | Grace..... | 54 | 6 |
| Pine Grove avenue..... | Nellie..... | Southward..... | 1,417 | 6 |
| Pine Grove avenue..... | Grace..... | Nellie..... | 700 | 6 |
| Potwyrne..... | Wright..... | Leavitt..... | 498 | 6 |
| Reed place..... | Perry..... | Clark..... | 515 | 6 |
| Reta..... | Addison avenue..... | Cornelia..... | 507 | 6 |
| Robey..... | Lawrence avenue..... | Grand place..... | 464 | 6 |
| Rokeby..... | Crossing..... | Grace..... | 72 | 6 |
| Roscoe..... | Crossing..... | Ashland avenue..... | 24 | 6 |
| Roscoe..... | Sheffield avenue..... | Racine avenue..... | 1,371 | 6 |
| Roscoe..... | Crossing..... | Lincoln avenue..... | 81 | 6 |
| St. Joe..... | Lincoln avenue..... | Western avenue..... | 906 | 6 |
| St. Elmo..... | Lincoln avenue..... | Wood..... | 480 | 6 |
| Seminary avenue..... | Crossing..... | Wrightwood avenue..... | 24 | 6 |
| Seminary avenue..... | Cleveland avenue..... | Southward..... | 372 | 6 |
| Seminary avenue..... | Wrightwood avenue..... | Northward..... | 284 | 6 |
| Sheffield avenue..... | Addison avenue..... | Southward..... | 1,000 | 6 |
| Sheffield avenue..... | Crossing..... | N. Fifty-ninth..... | 70 | 8 |
| Southport avenue..... | Graceland avenue..... | Clark..... | 1,104 | 6 |
| Southport avenue..... | Nellie..... | Grace..... | 703 | 6 |
| Soult..... | Crossing..... | Wellington avenue..... | 21 | 6 |
| State court..... | Crossing..... | Fletcher..... | 58 | 6 |
| Sulzer avenue..... | Halsted..... | Sulzer avenue..... | 1,240 | 36 |
| Vilas..... | Wright..... | Westward..... | 415 | 6 |
| Washington..... | Lincoln avenue..... | Westward..... | 1,691 | 6 |
| Webster avenue..... | West Ravenswood Park..... | Lincoln avenue..... | 4,474 | 6 |
| Webster avenue..... | Evanston avenue..... | Westward..... | 1,311 | 6 |

LAKE VIEW DISTRICT—CONTINUED.

| STREET | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|--|-------------------|-------------------|----------------------------|------------------------|
| Wellington avenue. | Halsted. | Eastward. | 284 | 6 |
| Wellington avenue. | Perry. | Westward. | 653 | 6 |
| Wellington avenue. | Clybourn avenue. | Hoyne avenue. | 632 | 6 |
| Western avenue. | St. Joe. | Northward. | 1,220 | 8 |
| Winthrop. | Thorndale avenue. | Grand. | 1,763 | 6 |
| Winthrop. | Ardmore. | Thorndale. | 989 | 6 |
| Winthrop. | Sheffield avenue. | Halsted. | 1,233 | 6 |
| Woodside. | Grace. | Nellie avenue. | 708 | 6 |
| Wright. | Sunnyside avenue. | Sulzer avenue. | 637 | 6 |
| Wright. | Sunnyside avenue. | Northward. | 832 | 6 |
| Wrightwood avenue. | Crossing. | Southport avenue. | 48 | 8 |
| Total | | | 70,015 | |
| Add branch pipe for hydrants. | | | 264 | 4 |
| Add branch pipe for hydrants. | | | 948 | 6 |
| Total feet laid in Lake View District. | | | 71,227 | |

LAKE DISTRICT.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|-----------------------------|----------------------------|----------------------------|----------------------------|------------------------|
| Alley south of Fifty-fifth. | Green. | Sangamon. | 660 | 6 |
| Alley south of Fifty-fifth. | Crossing | Halsted. | 50 | 8 |
| Alley south of Fifty-fifth. | Ashland. | Wood. | 1,298 | 6 |
| Alley south of Fifty-fifth. | Halsted. | Wallace | 1,251 | 6 |
| Alley north of Fifty-fifth. | Lafin. | Ashland avenue. | 664 | 6 |
| Aberdeen | Fifty-seventh. | Northward. | 540 | 6 |
| Archer avenue. | Thirty-ninth. | Underwood. | 2,710 | 8 |
| Armour. | Fifty-third | Fifty-fifth. | 1,143 | 6 |
| Ashland avenue. | Sixty-fourth | Northward. | 126 | 8 |
| Ashland avenue. | Thirty-ninth. | Southward. | 660 | 6 |
| Ashland avenue. | Sixty-fourth. | Southward. | 470 | 8 |
| Ashland avenue. | Seventy-first | Seventy-fourth. | 1,953 | 8 |
| Auburn avenue. | Emerald | Eastward | 381 | 6 |
| Bishop. | Sixty-fifth. | Sixty-sixth | 641 | 6 |
| Bishop. | Sixty-fifth. | Northward. | 1,014 | 6 |
| Bronson. | Lafin. | Loomis | 659 | 6 |
| Butterfield. | 128 ft. N. of Forty-ninth. | 272 ft. N. of Forty-ninth. | 144 | 4 |
| Chestnut. | Halsted. | Wallace | 1,326 | 6 |
| Dakota avenue | Robey | Leavitt. | 1,239 | 6 |
| Eightieth. | Wallace. | Vincennes road. | 1,132 | 6 |
| Elizabeth. | Fifty-seventh. | Southward | 964 | 6 |
| Emerald avenue. | Eighty-third | Northward. | 414 | 6 |
| Emerald avenue. | Forty-third. | Northward. | 1,337 | 6 |
| Emerald avenue. | Thirty-ninth. | Southward | 774 | 6 |
| Emerald avenue. | Fifty-sixth. | Northward. | 360 | 6 |
| Eighty-seventh. | Vincennes road. | Morgan. | 907 | 8 |
| Eighty-sixth. | Vincennes road. | Morgan. | 1,132 | 6 |
| Eighty-sixth court. | Vincennes road. | Sangamon | 666 | 6 |
| Eighty-third. | Halsted. | Kerfoot avenue. | 556 | 8 |
| Fiftieth court. | Crossing | Halsted. | 50 | 6 |
| Fiftieth court. | Oakley avenue | Westward. | 302 | 6 |
| Fiftieth. | Loomis | Westward. | 464 | 6 |
| Fifty-eighth. | Emerald avenue | Union | 332 | 6 |
| Fifty-eighth. | Wright. | Eastward. | 444 | 6 |
| Fifty-fourth court. | Crossing | Halsted. | 50 | 6 |
| Fifty-fourth. | Crossing | Halsted. | 50 | 6 |
| Fifty-ninth. | Crossing | Halsted. | 30 | 6 |
| Fifty-second. | Crossing | Halsted. | 52 | 6 |
| Fifty-second. | Halsted. | Peoria. | 633 | 6 |
| Fifty-seventh. | Crossing | Halsted. | 80 | 8 |
| Fifty-seventh. | Elizabeth | Center avenue. | 332 | 8 |
| Fifty-seventh. | Sherman | Winter. | 333 | 6 |
| Fifty-seventh. | Sherman | Wallace. | 390 | 6 |
| Fifty-sixth. | Wright. | Eastward. | 599 | 6 |
| Fifty-sixth. | Crossing | Halsted. | 80 | 6 |
| Fifty-third. | Winchester avenue. | Lincoln. | 334 | 6 |
| Forrest avenue. | Ninety-first | Ninety-third. | 1,093 | 6 |
| Forty-fifth. | Crossing | Halsted. | 53 | 6 |
| Forty-first. | Crossing | State | 46 | 12 |
| Forty-ninth | Winter. | Halsted. | 597 | 6 |
| Forty-ninth court. | Crossing | Halsted. | 50 | 6 |
| Forty-seventh. | Crossing | State | 35 | 6 |
| Forty-second. | Crossing | Halsted. | 53 | 6 |
| Forty-sixth. | Crossing | Halsted. | 53 | 6 |
| Goodspeed. | Sixty-seventh. | Sixty-ninth. | 1,318 | 6 |

LAKE DISTRICT—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|--------------------------|------------------------------|------------------------------|----------------------------|------------------------|
| Goodspeed..... | Fifty-first..... | Fifty-third..... | 1,330 | 6 |
| Grant place..... | Sixty-ninth..... | Seventieth..... | 624 | 6 |
| Green..... | Fifty-sixth..... | Southward..... | 330 | 6 |
| Green..... | Eighty-sixth..... | Eighty-fifth..... | 621 | 6 |
| Green..... | Eighty-fifth..... | Northward..... | 606 | 6 |
| Green..... | Seventy-third..... | Southward..... | 793 | 6 |
| Green..... | Seventy-seventh..... | Seventy-ninth..... | 1,344 | 6 |
| Gordon..... | Crossing..... | Halsted..... | 53 | 6 |
| Halsted..... | Eighty-seventh..... | Eighty-eighth..... | 685 | 8 |
| Hermitage..... | Fifty-eighth..... | Northward..... | 1,631 | 6 |
| Justine..... | Sixty-sixth..... | Northward..... | 1,647 | 6 |
| Kerfoot avenue..... | Eighty-sixth..... | Vincennes avenue..... | 1,334 | 6 |
| La Fayette avenue..... | Seventy-first..... | Seventy-third..... | 1,277 | 6 |
| Lafin..... | Sixty-fifth..... | Sixty-sixth..... | 641 | 6 |
| Lafin..... | Fifty-third..... | Alley N. of Fifty-fifth..... | 1,174 | 6 |
| Lafin..... | Sixty-third..... | Sixty-fifth..... | 1,297 | 6 |
| Lafin..... | Sixty-sixth..... | Sixty-seventh..... | 684 | 6 |
| Lafin..... | Sixty-seventh..... | Sixty-eighth..... | 682 | 6 |
| Laurel..... | Ninety-second..... | Northward..... | 859 | 6 |
| Leighton..... | Crossing..... | Halsted..... | 53 | 6 |
| Lincoln..... | Fifty-first..... | Fifty-third..... | 1,330 | 6 |
| Lincoln..... | Sixty-seventh..... | Sixty-ninth..... | 1,318 | 6 |
| Lincoln..... | Forty-ninth..... | Fifty-first..... | 1,363 | 6 |
| Lincoln..... | Forty-seventh..... | Forty-ninth..... | 1,289 | 6 |
| Loomis..... | Forty-sixth..... | Northward..... | 228 | 6 |
| Marlboro avenue..... | Robey..... | Leavitt..... | 1,289 | 6 |
| Marshfield avenue..... | Seventy-first..... | Seventy-fourth..... | 1,953 | 6 |
| Marshfield..... | Alley S. of Fifty-fifth..... | Fifty-eighth..... | 1,631 | 6 |
| Matteson..... | Crossing..... | Halsted..... | 52 | 6 |
| Morey..... | Eighty-seventh..... | Southward..... | 706 | 6 |
| Morgan..... | Fifty-sixth..... | Fifty-seventh..... | 647 | 6 |
| Morgan..... | Eighty-seventh..... | Southward..... | 1,000 | 6 |
| Morgan..... | Seventy-first..... | Seventy-second..... | 645 | 8 |
| Morgan..... | Eighty-sixth..... | Eighty-seventh..... | 664 | 8 |
| Morris..... | Crossing..... | Wright..... | 42 | 6 |
| Morris..... | Wright..... | Westward..... | 576 | 6 |
| Ninety-first proper..... | Spruce..... | Laurel..... | 442 | 6 |
| Ninety-first..... | Prospect..... | Pleasant..... | 788 | 8 |
| Ninety-first..... | Pleasant..... | Spruce..... | 305 | 8 |
| Oakwood avenue..... | Archer avenue..... | Underwood avenue..... | 1,762 | 6 |
| Oakwood avenue..... | Blanchard avenue..... | Hart avenue..... | 668 | 6 |
| Paulina..... | Fifty-fifth..... | Fifty-eighth..... | 1,631 | 6 |
| Paulina..... | Seventy-first..... | Seventy-fourth..... | 1,953 | 6 |
| Paulina..... | Fifty-first..... | Fifty-second..... | 627 | 6 |
| Peoria..... | Seventy-seventh..... | Seventy-ninth..... | 1,337 | 6 |
| Peoria..... | Fifty-fourth..... | Hockling..... | 325 | 6 |
| Peoria..... | Eighty-fifth..... | Eighty-sixth..... | 643 | 6 |
| Peoria..... | Alley S. of Fifty-fifth..... | Southward..... | 720 | 6 |
| Perry avenue..... | Seventy-third..... | Northward..... | 1,050 | 6 |
| Pleasant avenue..... | Ninety-first..... | Ninety-third..... | 1,076 | 6 |
| Prospect square..... | Ninety-first..... | Snake alley..... | 375 | 6 |
| Robey..... | Fifty-first..... | Fifty-third..... | 1,330 | 8 |
| Robey..... | Sixty-seventh..... | Sixty-ninth..... | 1,300 | 8 |
| Rosenmerkel..... | Wright..... | Wallace..... | 1,242 | 6 |
| Sangamon..... | Eighty-sixth..... | Eighty-seventh..... | 664 | 6 |

LAKE DISTRICT—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|--|-------------------------------|------------------------|----------------------------|------------------------|
| Sangamon | Fifty-fifth | Fifty-seventh | 980 | 6 |
| Sangamon | Seventy-fourth | Seventy-fifth | 451 | 6 |
| Sangamon | Seventy-second | Seventy-fourth | 1,325 | 6 |
| Sangamon | Seventy-seventh | Seventy-ninth | 1,831 | 6 |
| Seventy-eighth | Halsted | Morgan | 1,343 | 6 |
| Seventy-second | Vincennes road | Lafayette avenue | 609 | 6 |
| Seventy-seventh | Halsted | Morgan | 1,343 | 6 |
| Sherman | Alley S. of Fifty-fifth | Fifty-seventh | 983 | 6 |
| Sherman | Fifty-third | Southward | 561 | 6 |
| Sherman | Crossing | Root | 66 | 6 |
| Sixtieth | School | Wentworth avenue | 660 | 6 |
| Sixtieth court | Halsted | Winter | 634 | 6 |
| Sixty-eighth | Yale | Wentworth avenue | 333 | 6 |
| Sixty-eighth | Robey | Leavitt | 1,239 | 6 |
| Sixty-fifth court | Wright | Stewart | 489 | 6 |
| Sixty-fifth | Loomis | Ashland avenue | 1,304 | 8 |
| Sixty-first | Crossing | Halsted | 36 | 6 |
| Sixty-fourth | Justine | Ashland avenue | 313 | 6 |
| Sixty-fourth | State | Westward | 178 | 6 |
| Sixty-ninth | Wood | Western avenue | 4,021 | 8 |
| Sixty-second | Crossing | Halsted | 40 | 6 |
| Sixty-seventh | State | Halsted | 5,207 | 24 |
| Sixty-seventh | Crossing | Sherman | 5 | 6 |
| Sixty-seventh | Crossing | Emerald avenue | 6 | 6 |
| Sixty-seventh | Crossing | Stewart avenue | 13 | 6 |
| Sixty-seventh | Crossing | Wentworth avenue | 14 | 8 |
| Sixty-sixth court | Wright | Stewart | 497 | 8 |
| Sixty-sixth | Winter | Eastward | 490 | 6 |
| Snyder | Crossing | Halsted | 56 | 6 |
| Spruce | Ninety-first proper | Ninety-third | 1,370 | 6 |
| Union avenue | Eighty-seventh | Eighty-eighth | 565 | 6 |
| Vincennes road | Vincennes avenue | Union | 1,213 | 8 |
| Vincennes road | Crossing | Seventy-second | 42 | 6 |
| Wallace | Crossing | Root | 22 | 6 |
| Webster avenue | Seventy-third | Seventy-fourth | 662 | 6 |
| Winchestex | Forty-seventh | Forty-ninth | 1,289 | 6 |
| Winchester | Fifty-first | Fifty-third | 1,330 | 6 |
| Winchester | Sixty-seventh | Sixty-ninth | 1,318 | 6 |
| Winter | Eighty-first | Northward | 372 | 6 |
| Winter | Alley S. of Fifty-fifth | Fifty-sixth | 360 | 6 |
| Winter | Fiftieth | Fifty-first | 669 | 6 |
| Wood | Forty-fifth | Forty-sixth | 619 | 6 |
| Wood | Fifty-first | Fifty-third | 1,330 | 8 |
| Wright | Seventy-fourth | Northward | 670 | 6 |
| Yale | Seventy-third | Seventy-fourth | 614 | 6 |
| Total | | | 121,005 | |
| Add branch pipe for hydrants | | | 132 | 4 |
| Add branch pipe for hydrants | | | 2,460 | 6 |
| Total feet laid in Lake District | | | 123,597 | |

JEFFERSON DISTRICT.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|-----------------------|---------------------------|--------------------|----------------------------|------------------------|
| Armitage avenue... | Robinson avenue... | Grand avenue | 675 | 8 |
| Armitage avenue... | Kedzie avenue... | Crawford... | 5,400 | 12 |
| Armitage avenue... | Howard avenue... | Westward... | 140 | 12 |
| Ballou avenue... | North avenue... | Armitage avenue... | 2,685 | 6 |
| Belmont avenue... | Elston avenue... | Wallace | 1,975 | 8 |
| Bloomington avenue... | Hosmer avenue... | Eastward... | 882 | 6 |
| California avenue... | Diversy avenue... | Elston avenue... | 2,450 | 8 |
| Centre... | Crossing | California avenue | 88 | 6 |
| Columbia... | Crossing | Leavitt | 70 | 6 |
| Cortland... | Kimble | Ballou | 440 | 8 |
| Cortland... | Ballou | Meeker | 906 | 8 |
| Cortland... | Meeker | Westward | 641 | 8 |
| Crawford avenue... | North avenue... | Wabansia avenue... | 600 | 12 |
| Crawford avenue... | Armitage avenue... | Cortland | 650 | 12 |
| Delamater place... | Crossing | Armitage | 55 | 6 |
| Diversy avenue... | Crossing | Hoffman | 80 | 8 |
| Diversy avenue... | Crossing | Western | 12 | 8 |
| Elston avenue... | California avenue | Belmont avenue... | 186 | 8 |
| Follansbee... | Crossing | Milwaukee avenue | 65 | 6 |
| Francisco... | Crossing | Belmont avenue... | 86 | 6 |
| Francisco... | Lee avenue... | Southward | 1,000 | 6 |
| Grand avenue... | North avenue... | Armitage avenue | 5,148 | 8 |
| Grand avenue... | Hamlin | Northward | 187 | 12 |
| Grand avenue... | Armitage... | Southward | 280 | 8 |
| Grand avenue... | Crossing | North avenue | 86 | 12 |
| Gordon... | California avenue | Westward | 680 | 6 |
| Hamlin avenue... | Crossing | Armitage | 90 | 8 |
| Hancock... | Crossing | Armitage | 85 | 6 |
| Hosmer avenue... | Grand avenue | Southward | 1,900 | 6 |
| Howard... | North avenue... | Humboldt | 3,985 | 6 |
| Humboldt boulevard... | Palmer place boulevard... | Kimble avenue... | 1,115 | 6 |
| Humboldt... | Howard | Westward | 857 | 6 |
| Irving place... | Crossing | Armitage | 90 | 8 |
| Jefferson avenue... | Grand avenue | Southward | 570 | 8 |
| Keeney avenue... | North avenue... | Dickens | 3,847 | 8 |
| Kimble avenue... | Armitage | McLane | 850 | 8 |
| Kimble avenue... | North avenue... | Armitage | 2,685 | 8 |
| Koenig avenue... | Lee avenue... | Warsaw | 460 | 6 |
| Lee avenue... | California avenue | Wallace | 1,900 | 6 |
| McCauley... | Armitage avenue... | North avenue... | 2,685 | 6 |
| McLane... | Kimble avenue... | Westward | 2,488 | 6 |
| Mead... | Bloomington road | Armitage boulevard | 1,217 | 6 |
| Mead... | Armitage avenue... | Humboldt | 1,360 | 6 |
| Mead... | North avenue... | Bloomington | 1,364 | 6 |
| Mead... | Crossing | Armitage avenue... | 90 | 6 |
| Meeker... | North avenue... | Armitage avenue | 2,685 | 8 |
| Mentmore... | Sheridan | Kimble avenue | 400 | 6 |
| Milwaukee avenue... | Thomas avenue | C. & N.-W. Ry. | 28,765 | 8 |
| Nebraska... | Crossing | Cortland | 41 | 6 |
| North avenue... | Kimble avenue... | Crawford | 4,020 | 12 |
| North avenue... | Crawford | Grand | 2,528 | 12 |
| Oglesby avenue... | North avenue... | Armitage avenue... | 2,660 | 6 |
| Ovitt... | Kedzie avenue... | Mead | 558 | 6 |
| Ridgway... | Crossing | Armitage | 55 | 6 |
| Robinson avenue... | Armitage... | Southward | 875 | 6 |

JEFFERSON DISTRICT—CONTINUED.

| STREET. | FROM | TO | Length of Pipe in feet. | Diameter in inches. |
|--|---------------------|----------------------|----------------------------|------------------------|
| Sheridan avenue... | Humboldt..... | Mentmore..... | 665 | 6 |
| Sheridan avenue... | North avenue..... | Wabansia avenue..... | 675 | 6 |
| Sheridan avenue... | Crossing..... | Armitage..... | 90 | 6 |
| North of C., M. & St. P. Ry. | Hosmer..... | Westward..... | 514 | 6 |
| South of C., M. & St. P. Ry. | Hosmer..... | Robinson..... | 780 | 6 |
| Thomas..... | Lee avenue..... | Warsaw..... | 260 | 6 |
| Thomas..... | Crossing..... | Belmont avenue..... | 86 | 6 |
| Tripp..... | Dickens..... | Humboldt..... | 638 | 6 |
| Tripp..... | North avenue..... | Dickens..... | 3,347 | 6 |
| Wabansia avenue... | Howard..... | Westward..... | 382 | 6 |
| Wabansia avenue... | Mead..... | Westward..... | 483 | 6 |
| Wabansia avenue... | Kedzie avenue..... | Mead..... | 514 | 6 |
| Wabansia avenue... | Oglesby avenue..... | Meeker avenue..... | 444 | 6 |
| Wallace..... | Belmont avenue..... | Lee avenue..... | 310 | 6 |
| Warsaw..... | Thomas avenue..... | California..... | 1,470 | 6 |
| Total..... | | | 98,598 | |
| Add branch pipe for hydrants..... | | | 2,748 | 6 |
| Total feet laid in Jefferson District..... | | | 101,346 | |

PIPE TAKEN UP OR ABANDONED IN 1890.

| STREET. | FROM | TO | TAKEN UP OR ABANDONED. | | SUBSTITUTED. | |
|---------------------------|---------------------------|---------------------------|------------------------|-----------------|-----------------|-----------------|
| | | | Length in Feet. | Size in Inches. | Length in Feet. | Size in Inches. |
| *Archer avenue | Twenty-fourth | Hanover | 750 | 6 | 1,490 | 8 |
| | | | 570 | 8 | | |
| Butler | Crossing | Douglas avenue | 66 | 6 | | |
| Canal | Sixteenth | Southward | 400 | 6 | 868 | 4 |
| Douglas avenue | Portland avenue | Parnell avenue | 1,760 | 6 | 2,020 | 6 |
| | | | 185 | 8 | | |
| Pacific avenue | Van Buren | Southward | 854 | 4 | 858 | 6 |
| Portland avenue | Douglas avenue | Southward | 160 | 4 | 300 | 6 |
| | | | 50 | 6 | | |
| Sixty-eighth | Pumping works | Stony Island avenue | 5,238 | 16 | 5,238 | 36 |
| Sixty-seventh | Stony Island avenue | Woodlawn avenue | 2,725 | 16 | 2,725 | 36 |
| Sixty-seventh | Woodlawn avenue | State | 7,950 | 14 | 2,525 | 36 |
| | | | | | 5,425 | 30 |
| Stony Island avenue | Sixty-seventh | Sixty-eighth | 670 | 16 | 670 | 36 |
| TOTAL | | | 21,328 | | 22,119 | |

* Done at the expense of the Chicago, Madison & Northern Railroad.

RECAPITULATION OF PIPE TAKEN UP OR ABANDONED IN 1890.

| | |
|---------------|--------------|
| 4 inch | 1,014 feet. |
| 6 inch | 8,026 feet. |
| 8 inch | 705 feet. |
| 14 inch | 7,950 feet. |
| 16 inch | 8,633 feet. |
| TOTAL | 21,328 feet. |

RECAPITULATION OF PIPE LAID DURING 1890, INCLUDING HYDRANT BRANCHES.

| DIVISION. | Length of Pipe in Feet. | Diameter of Pipe in Inches. | Length of Pipe in Feet. | Diameter of Pipe in Inches. | Length of Pipe in Feet. | Diameter of Pipe in Inches. | Length of Pipe in Feet. | Diameter of Pipe in Inches. | Length of Pipe in Feet. | Diameter of Pipe in Inches. | Length of Pipe in Feet. | Diameter of Pipe in Inches. | Length of Pipe in Feet. | Diameter of Pipe in Inches. | Length of Pipe in Feet. | Diameter of Pipe in Inches. | Length of Pipe in Feet. | Diameter of Pipe in Inches. | Total Length of Pipe in Feet. |
|--------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------------|
| | | | | | | | | | | | | | | | | | | | |
| North..... | 36 | 4 | 8,149 | 6 | 1,761 | 8 | ..... | 12 | ..... | 16 | ..... | 24 | ..... | 30 | ..... | 36 | ..... | 48 | 9,946 |
| South | 538 | 4 | 36,198 | 6 | 6,931 | 8 | ..... | 12 | ..... | 16 | ..... | 24 | ..... | 30 | 5,034 | 36 | 1,325 | 48 | 71,196 |
| West | 9,615 | 4 | 76,796 | 6 | 27,282 | 8 | 13,163 | 12 | 1,430 | 16 | 175 | 24 | ..... | 30 | 220 | 36 | ..... | 48 | 121,681 |
| Hyde Park..... | 2,576 | 4 | 145,436 | 6 | 27,901 | 8 | 11,084 | 12 | 50 | 16 | 256 | 24 | 5,538 | 30 | 11,125 | 36 | ..... | 48 | 203,966 |
| Lake View..... | 464 | 4 | 63,888 | 6 | 5,655 | 8 | ..... | 12 | ..... | 16 | ..... | 24 | ..... | 30 | 1,240 | 36 | ..... | 48 | 71,327 |
| Lake | 276 | 4 | 95,894 | 6 | 22,174 | 8 | 46 | 12 | ..... | ..... | 5,207 | 24 | ..... | 30 | ..... | 36 | ..... | 48 | 123,597 |
| Jefferson ..... | ..... | 4 | 40,094 | 6 | 47,041 | 8 | 13,611 | 12 | ..... | 16 | ..... | 24 | ..... | 30 | ..... | 36 | ..... | 48 | 101,346 |
| Total in Feet..... | 6,505 | | 467,035 | | 138,745 | | 37,904 | | 1,480 | | 25,908 | | 5,538 | | 18,519 | | 1,325 | | 702,959 |

TABLE SHOWING AMOUNT OF PIPE IN USE IN THE CITY OF CHICAGO AT THE CLOSE OF 1890.

| Diameter of Pipe. | 1889. | 1890. | | | |
|---------------------|------------------------|---------------------------------------|----------------------|--|-----------------------|
| | Amount in Use in Feet. | Amount Taken up or Abandoned in Feet. | Amount Laid in Feet. | Grand Total in Feet in Use at the close of 1890. | Grand Total in Miles. |
| 48 | ..... | ..... | 1,325 | 1,325 | 0.1113 |
| 36 | 56,753 | ..... | 18,519 | 75,272 | 14.1113 |
| 30 | 39 | ..... | 5,538 | 5,577 | 1.2270 |
| 28 | 160 | ..... | ..... | 160 | 0.1110 |
| 24 | 152,967 | ..... | 25,908 | 178,875 | 33.1113 |
| 20 | 7,931 | ..... | ..... | 7,931 | 1.1114 |
| 18 | 1,000 | ..... | ..... | 1,000 | 0.1112 |
| 16 | 201,525 | 8,633 | 1,480 | 194,372 | 36.1113 |
| 14 | 25,234 | 7,950 | ..... | 17,284 | 3.1114 |
| 12 | 378,513 | ..... | 37,904 | 416,417 | 78.1113 |
| 10 | 26,860 | ..... | ..... | 26,860 | 5.1112 |
| 8 | 1,140,425 | 705 | 138,745 | 1,278,465 | 242.7110 |
| 6 | 2,602,400 | 3,026 | 467,035 | 3,066,409 | 580.1113 |
| 4 | 1,070,854 | 1,014 | 6,505 | 1,076,345 | 203.1113 |
| 3 | 16,964 | ..... | ..... | 16,964 | 3.1113 |
| Total in feet..... | 5,681,625 | 21,328 | 702,959 | 6,363,266 | ..... |
| Total in miles..... | 1,076.1110 | 4.2110 | 133.7110 | 1,205.1110 | 1,205.1110 |

The following table shows the number of stop valves put in during the year 1890 in the city of Chicago :

| DIVISION. | SIZE OF VALVES. | | | | | | | | | TOTAL |
|-----------------|-----------------|-------|-------|--------|--------|--------|--------|--------|--------|-------|
| | 4 in. | 6 in. | 8 in. | 12 in. | 16 in. | 20 in. | 24 in. | 30 in. | 36 in. | |
| North | 2 | 18 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 23 |
| South | 4 | 46 | 20 | 5 | ..... | ..... | 7 | ..... | 5 | 87 |
| West | 6 | 162 | 62 | 30 | 3 | ..... | ..... | ..... | 3 | 266 |
| Hyde Park | 1 | 235 | 45 | 11 | 2 | 1 | 9 | 3 | 3 | 310 |
| Lake View | 3 | 110 | 11 | ..... | ..... | ..... | ..... | ..... | ..... | 124 |
| Lake | 1 | 173 | 43 | 5 | ..... | ..... | 3 | ..... | ..... | 225 |
| Jefferson ..... | ..... | 56 | 54 | 9 | ..... | ..... | ..... | ..... | ..... | 119 |
| TOTAL | 17 | 800 | 237 | 60 | 5 | 1 | 19 | 3 | 11 | 1,153 |

Table showing number and size of valves in use in the city of Chicago at the end of 1890, except in Washington Heights, not yet scheduled :

| DIVISION. | SIZE OF VALVES. | | | | | | | | | | | | TOTAL | |
|----------------|-----------------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|-------|----------|
| | 3 inch. | 4 inch. | 6 inch. | 8 inch. | 10 inch. | 12 inch. | 14 inch. | 16 inch. | 18 inch. | 20 inch. | 24 inch. | 30 inch. | | 36 inch. |
| North ..... | .... | 168 | 404 | 273 | .... | 32 | .... | 13 | .... | .... | 12 | .... | 3 | 905 |
| South ..... | .... | 154 | 620 | 623 | .... | 78 | .... | 16 | .... | .... | 22 | .... | 9 | 1,522 |
| West..... | .... | 558 | 1,687 | 948 | .... | 208 | .... | 63 | .... | .... | 30 | .... | 8 | 3,452 |
| Hyde Park..... | .... | 76 | 513 | 139 | 18 | 39 | .... | 37 | .... | 1 | 13 | 3 | 3 | 842 |
| Lake View. | 1 | 237 | 418 | 63 | .... | 22 | 3 | 1 | .... | 3 | 2 | .... | .... | 750 |
| Lake..... | 4 | 100 | 622 | 189 | 2 | 50 | 13 | 9 | 2 | .... | 14 | .... | .... | 1,006 |
| Jefferson..... | .... | .... | 56 | 54 | .... | 9 | .... | .... | .... | .... | .... | .... | .... | 119 |
| TOTAL.. | 5 | 1,293 | 4,270 | 2,289 | 20 | 438 | 16 | 139 | 2 | 4 | 93 | 3 | 23 | 8,595 |

HYDRANTS PLACED DURING 1890.

The following tables show the hydrants placed in 1890, and the total number now in use in the city of Chicago, excepting such as are in Washington Heights :

| DIVISION. | 2½-inch Single. | 2¼-inch Double. | 4-inch Double. | 2½-inch Double, with one 4-inch Single. | TOTAL. |
|----------------|--------------------|--------------------|-------------------|--|--------|
| North..... | 8 | 26 | ..... | ..... | 29 |
| South..... | 14 | 83 | ..... | ..... | 97 |
| West..... | 8 | 279 | ..... | ..... | 287 |
| Hyde Park..... | 41 | 360 | 8 | 20 | 429 |
| Lake View..... | 22 | 79 | ..... | 1 | 102 |
| Lake..... | 11 | 205 | ..... | ..... | 216 |
| Jefferson..... | ..... | 229 | ..... | ..... | 229 |
| Total..... | 99 | 1,261 | 8 | 21 | 1,389 |

During the year there were taken out in the North Division six 2½-inch single hydrants, and in the West Division three, all of which were replaced by 2½-inch double nozzle hydrants.

Table showing total number of fire hydrants in the city of Chicago at the close of 1890, excepting those in Pullman which are private property, and those in Washington Heights which have not yet been scheduled :

| DIVISION. | 2½-inch Single. | 2½-inch Double. | 4-inch Double. | 2½-inch Double, with one 4-inch Single. | TOTAL. |
|----------------|--------------------|--------------------|-------------------|--|--------|
| North..... | 408 | 459 | 129 | ..... | 996 |
| South..... | 756 | 926 | 192 | ..... | 1,874 |
| West..... | 1,423 | 2,865 | 237 | ..... | 4,525 |
| Hyde Park..... | 116 | 971 | 8 | 605 | 1,700 |
| Lake View..... | 25 | 673 | ..... | 1 | 699 |
| Lake..... | 11 | 205 | ..... | 1,597 | 1,813 |
| Jefferson..... | ..... | 229 | ..... | ..... | 229 |
| Total..... | 2,789 | 6,328 | 566 | 2,203 | 11,836 |

One fire cistern was built during the year on Desplaines street, between Adams and Monroe streets.

All of which is respectfully submitted.

JAMES A. MOODY,
Superintendent.

EXHIBIT "G."

METER DEPARTMENT.

CHICAGO, January 1, 1891.

A. W. COOKE,

City Engineer.

DEAR SIR :—Appended you will please find report of Meter Department for the fiscal year, giving the total number of water meters in use up to and including December 31, 1890 ; also, the number of water meters added, removed, and purchased during the year 1890 ; also, the number of hydraulic elevators, together with the total amount of revenue collected during the year 1890, for water measured by meters and used by hydraulic elevators.

HYDRAULIC ELEVATORS.

| | |
|--------------------------------------|-------|
| Number in use December 31, 1889..... | 332 |
| Number added in 1890... .. | 1 |
| | <hr/> |
| | 333 |

Revenue collected during 1890, for water measured by meters, and used by hydraulic elevators, \$671,160.10, showing an increase of \$78,949.19 over the amount collected from the same source during the year 1889.

WATER METERS.

| SIZE OF METERS. | ¾-inch. | ¾-inch. | 1-inch. | 1½-inch. | 2-inch. | 3-inch. | 4-inch. | 6-inch. | 8-inch. | 10-inch. | Total. |
|--|---------|---------|---------|----------|---------|---------|---------|---------|---------|----------|--------|
| Number in use December 31, 1889.. | 506 | 284 | 1,085 | 620 | 585 | 457 | 35 | 3 | 3 | ..... | 3,578 |
| Number added during 1890 | 18 | 34 | 92 | 111 | 117 | 36 | 41 | 7 | ..... | 2 | 458 |
| Whole number..... | 524 | 318 | 1,177 | 731 | 702 | 493 | 76 | 10 | 3 | 2 | 4,036 |
| Number removed during 1890..... | 23 | 6 | 53 | 18 | 9 | 5 | ..... | ..... | 3 | ..... | 112 |
| Number in use December 31, 1890.. | 501 | 318 | 1,124 | 718 | 693 | 488 | 76 | 10 | ..... | 2 | 3,924 |
| Meters owned by City.... | 150 | 46 | 376 | 110 | 89 | 109 | ..... | ..... | ..... | ..... | 860 |
| Meters owned by private parties... | 351 | 266 | 748 | 608 | 624 | 379 | 76 | 10 | ..... | 2 | 3,064 |
| Total number in use..... | 501 | 312 | 1,124 | 718 | 693 | 488 | 76 | 10 | ..... | 2 | 3,924 |
| Meters on hand December 31, 1889.. | 27 | 7 | 17 | 2 | 8 | 18 | 2 | ..... | ..... | ..... | 76 |
| Meters purchased from manufacturers in 1890... | ..... | 57 | 28 | 107 | 145 | 24 | 48 | 7 | ..... | 2 | 418 |
| Meters purchased from private parties..... | 8 | 6 | 16 | 5 | 6 | 4 | ..... | ..... | ..... | ..... | 45 |
| City meters removed, repaired and placed in stock in 1890..... | 10 | ..... | 36 | 6 | 8 | 1 | ..... | ..... | ..... | ..... | 56 |
| Total | 45 | 70 | 97 | 120 | 162 | 42 | 50 | 7 | ..... | 2 | 595 |
| Meters set during 1890... | 18 | 34 | 92 | 111 | 117 | 36 | 41 | 7 | ..... | 2 | 458 |
| On hand December 31, 1890..... | 27 | 23 | 14 | 10 | 23 | 15 | 10 | ..... | ..... | ..... | 122 |

The following table shows the number of meters, and their capacity, set in place during the past four years :

| YEAR. | Number Set. | | Area in Square Inches |
|------------|-------------|--------------------------|-----------------------|
| 1887... .. | 249 | Meters of all sizes..... | 573.4536 |
| 1888..... | 218 | Meters of all sizes..... | 533.0968 |
| 1889..... | 292 | Meters of all sizes..... | 697.2 |
| 1890..... | 458 | Meters of all sizes..... | 1781.07 |

The condition of the water service in the packing district of the Stock Yards, after annexation to the city, was such as to require immediate attention and remedy. The large consumption of water and the small amount of revenue received therefor, did not correspond. Steps were accordingly taken to re-arrange the water service referred to.

During the year 1890, changes and improvements have been made in this water service, aggregating \$17,083.25, which amount was borne by the consumers, for improvements, etc., to protect the city's revenue.

The following table, given below, shows the monthly average payments before and after the changes had been made :

| Consumers. | BEFORE IMPROVEMENT. | | | AFTER IMPROVEMENT. | | |
|------------|-----------------------------|-------|--------------------|------------------------------|-------|--------------------|
| | FROM | Rate. | Average per Month. | FROM | Rate. | Average per Month. |
| A | July '89 to December '89 .. | 7c | \$16.50 | May '90 to January '91.... | 5½c | \$ 168.43 |
| B | July '89 to May '90 | 5c | 24.30 | February '90 to January '91. | 5c | 60.08 |
| C | July '89 to July '90 | 8c | 30.30 | July '90 to December '90 .. | 4½c | 214.61 |
| D | July '89 to November '90 .. | 8c | 36.48 | November '90 to January '91 | 6c | 64.42 |
| E | July '89 to December '89 .. | 4c | 100.14 | April '90 to January '91.... | 4c | 209.79 |
| F | June '89 to September '90.. | 4c | 131.82 | November '90 to January '91 | 3c | 1,247.73 |
| G | July '89 to August '90 | 4c | 217.16 | August '90 to January '91.. | 3c | 980.61 |
| | | | | | | \$2,394.92 |

Notwithstanding a reduction in rates has been made, equal to about one-third, there is an average increase in receipts of nearly \$2,400.00 per month. While a great deal has been accomplished, much remains to be done in this district.

The work has necessarily been slow for the reason that this department has, in every instance, consulted the convenience of the consumers, as to the time when the work would cause them the least inconvenience, it generally having been done on Sundays.

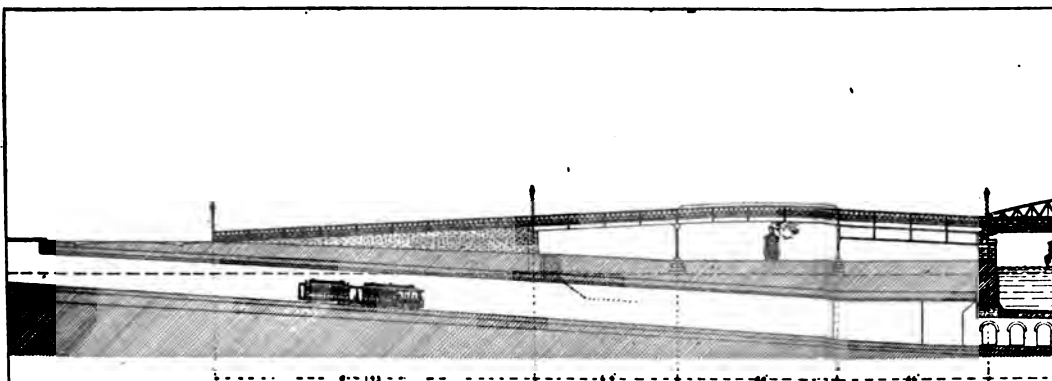
Amount of stock on hand in Meter Department, January 1st, 1891.

| | | |
|-----------------------------|-------------------|----------|
| 120 Meters | various sizes, \$ | 7,663 30 |
| 139 Meter counters | " | 386 37 |
| 221 Meter bends | " | 60 90 |
| 27 Meter rods | " | 27 00 |
| 158 Union nipples..... | " | 55 88 |
| 68 Straight stop cocks..... | " | 93 90 |

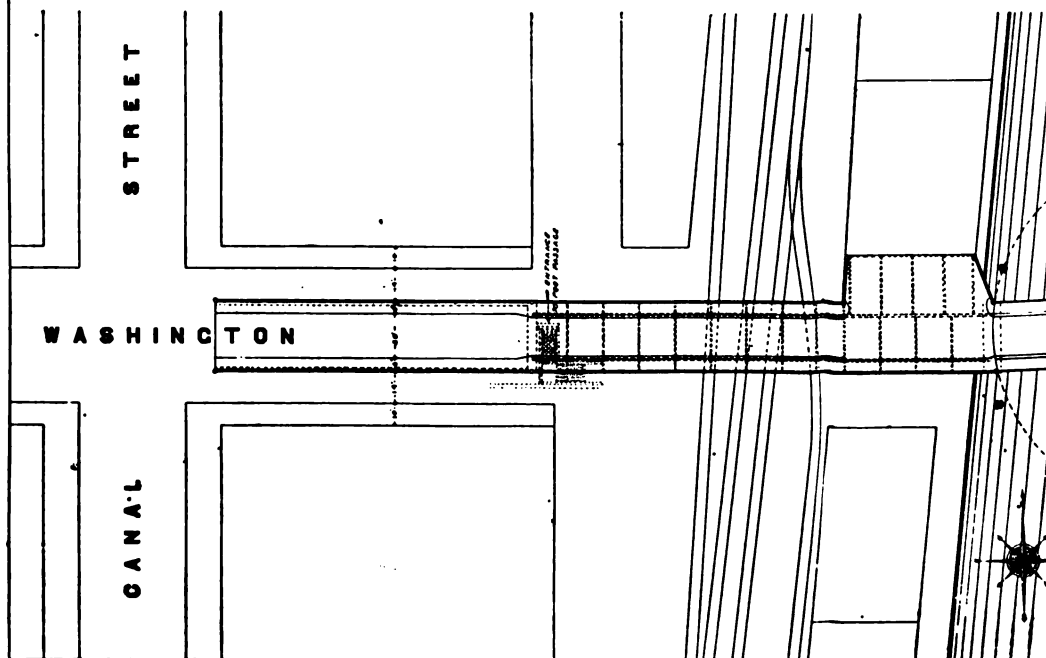
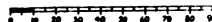
| | | |
|--|-------------------|-----------|
| 3,442 Pounds brass castings | various sizes, \$ | 860 50 |
| 71 Hand wheels..... | " | 30 53 |
| 55 Meter boxes... .. | " | 86 60 |
| 21 Meter frames..... | " | 53 45 |
| 100 Pounds old brass scraps | " | 10 00 |
| 15 Two-inch heavy street stops..... | | 52 50 |
| 192 Malleable ells and couplings..... | various sizes, | 59 15 |
| 383 Iron nipples..... | " | 174 03 |
| 4 Rod iron T's | " | 6 00 |
| 26 Valves..... | " | 228 00 |
| 4,880 Pounds iron castings..... | " | 122 00 |
| 36 Meter hoods | " | 27 00 |
| 32 Flange ells | " | 32 00 |
| 44 Air chambers..... | " | 184 30 |
| 151 Meter connections | " | 235 22 |
| 5 Meter shells..... | " | 100 00 |
| 68 Bushings..... | " | 48 00 |
| 146 Rubber spindle packing..... | " | 14 60 |
| 35 Meter covers | " | 109 71 |
| 18 Bell covers..... | " | 18 00 |
| 3,400 feet Lumber..... | " | 44 20 |
| 1,961 Meter ends..... | " | 58 83 |
| 25 Bell nipples | " | 30 60 |
| 68 Meter ratchets..... | " | 136 00 |
| 20 Brass strainers..... | " | 37 50 |
| 1,400 Iron bolts and nuts..... | " | 70 00 |
| 174 Meter caps..... | " | 43 50 |
| 61 Two-inch iron unions..... | | 17 08 |
| 152 Caulking nipples.... | various sizes | 152 00 |
| 290 pounds rubber packing..... | " | 72 50 |
| 137 Bibb cocks..... | " | 207 35 |
| 69 Meter bottoms..... | " | 293 00 |
| 678 Rubber bouncers | " | 67 80 |
| 1 Lathe and tools at water works shop..... | | 486 00 |
| 1 Tank for testing meters..... | | 10 00 |
| All tools in shop, including derricks and hand-truck | | 200 00 |
| 5 Horses and Wagons..... | | 1000 00 |
| Sundries, including hood covers, nails, brass wire, sealing wax, dial plates, rods, crowbars, buckets, etc..... | | 100 00 |
| Total. | \$ | 13,765 30 |

Respectfully submitted,

GODFREY J. BAKER,
Superintendent of Meters.



PLAN OF
WASHINGTON
BRIDGE AND
CHICAGO
1890.
SCALE



so doing not advisable. During the month of September, Acting City Engineer O. H. Cheney ordered three borings taken, the first one to be forty-seven hundred (4,700) feet east of the shore shaft, the remaining two still further eastward.

The lateness of the year prevented the consummation of this very much desired wish. The first boring, however, was successfully accomplished and the rock located at fifty-four and one-half ($54\frac{1}{2}$) feet below city datum, or six (6) feet above the internal top of tunnel at that point. While this result gave us some information as to what we might expect later on, it was not deemed sufficient to warrant the proposed change of grade, and the conclusion reached was, that we had better proceed on the same grade and alignment as heretofore or at least until such time as the result of the remaining two (2) borings were known. The rock first appeared in the drift thirty-one (31) feet east of the shore shaft; its next disappearance below the grade line of the tunnel occurred one thousand (1,000) feet further on, thence with the exception of an interval of three hundred and twenty-five (325) feet, commencing at a point fifteen hundred and fifty-six (1,556) feet east of the shore shaft, and occasional nests of boulders irregularly located, but little rock excavation was encountered until a distance of twenty-four hundred and eighty-five (1,285) feet from the shore shaft was reached, since which time there has been no drop below the grade line, and the average elevation of the rock will quite reach a height of five (5) feet above the bottom of the invert.

After repeated and ineffectual trials to obtain a rock roof it was for the first time secured December 9, 1890, at a distance of thirty-six hundred and thirty-four (3,634) feet east of the shore shaft, and with the expiration of the year is still retained.

On the 20th of March, at a distance of sixteen hundred and seventy-five (1,675) feet east of the shore shaft, the first and only real sand pocket was met, and but the second one during the process of this tunnel construction. Its length was about one hundred (100) feet, and its greatest overhead vacuum or summit was twenty (20) feet in from its west end, at which point for twelve (12) feet above the internal top of the tunnel was excavated and refilled.

The first indication of the approach to this pocket was the excessive moisture and dripping from the roof, and the entrance was met with a deluge of water almost resembling a cloud burst. So great was the volume that it became necessary for the men to wear oil skins and rubber suits as a means of protection.

The excavation was composed of running black sand, or more properly speaking, decomposed slate stone.

June 9, 1890, an ordinance was passed by the City Council ordering the extension of the tunnel forty-five hundred (4,500) feet, making its total length from the shore shaft in an easterly direction ten thousand (10,000) feet.

September 23, 1890, the contract was let for the before named extension, and also for such alterations to the crib as will be necessitated by the increased depth of water, to Messrs. Schailer & Schniglaui.

It was originally intended to place the crib during the spring of 1890, but the projected extension of the tunnel warranted a delay until the pleasure of the Council was known, and their delay in taking action, together with differences to be adjusted by the contracting parties, brought it so late into the season as to render it unsafe to make the venture, and so the undertaking was deferred until next year. In dealing with the engineering features of this construction I deem it proper to note the above as showing one of the impediments to progress.

The Rand air plant, during the latter part of December, is being introduced as a substitute for hand drilling, and as it is of an approved pattern I doubt not will very much expedite the work.

The assistants to the Engineer in charge have performed their work in a satisfactory manner.

SUMMARY OF WORK COMPLETED DURING THE YEAR 1890.

TOTALS TO DATE, ESTIMATES, EXTRAS, ETC.

| | Lineal Feet. | Extra Excavation and Brick Work. | Shore Shaft. | Rock Excavation. |
|----------------------|--------------|---|-----------------|---------------------|
| | Tunnel. | Cubic Yards. | | Cubic Yards. |
| January..... | 265.0 | 34.78 | ..... | 93.28 |
| February..... | 812.5 | 103.00 | ..... | 27.09 |
| March..... | 241.0 | 236.94 | ..... | 44.51 |
| April..... | 293.5 | 97.81 | ..... | 93.67 |
| May..... | 443.0 | 75.03 | ..... | 28.70 |
| June..... | 255.0 | 14.91 | ..... | 160.76 |
| July..... | 204.0 | 6.31 | ..... | 174.21 |
| August..... | 123.0 | 9.61 | ..... | 133.52 |
| September.... | 194.0 | 21.56 | ..... | 199.85 |
| October..... | 163.0 | 17.56 | ..... | 231.92 |
| November..... | 156.0 | 72.56 | ..... | 223.20 |
| December..... | 110.0 | 19.49 | ..... | 172.03 |
| | 2,760.0 | 759.76 | ..... | 1,582.74 |
| Previous Totals..... | 968.8 | 675.06 | 77½ feet. | 606.62 |
| Totals to date..... | 3,728.8 | 1,434.82 | 77½ feet. | 2,189.36 |

All completed work is in good condition, the material incorporated therein of the best quality.

Respectfully submitted,

H. C. LEACH,

Assistant Engineer.

EXHIBIT "J."

NEW LAKE TUNNEL.

CHICAGO, January 1, 1891.

BERNHARD FEIND,

Assistant City Engineer.

SIR:—I respectfully transmit herewith my annual report, for the year 1890, of work on new tunnels and pumping stations for year 1890:

TUNNELS.

BREAKWATER EAST SIX-FOOT TUNNELS.

A total of 9,879.05 feet has been constructed in these two tunnels during the year. In the last annual report the general underground stratification was described. As far as possible, the excavation for the tunnel is kept in the hard-pan belt. Above and below this hard-pan belt is a water-bearing gravel and silt stratum. Both strata carry water under a considerable head. The upper stratum is the less harmful of the two and at times is entirely dry. At the end of the year 1889 the excavation of both tunnels was about one-half in the hard-pan belt, the other half being in this upper water-bearing stratum which is immediately under the soft clay. As the tunnels progressed eastward, running level, and as the above-mentioned strata conform roughly to the lake bottom, or, in other words, drop off with the bottom of the lake, it can be understood that the hard-pan would gradually pass below the bottom line of the excavation. This had taken place early in October of this year. The tunneling immediately became more difficult, as the water and silt running from the bottom of the excavation caused the roof to become heavy. This bottom being soft offered no support for timbers or uprights which might carry the roof. In addition, large quantities of silt and water would run back in the drift, completely filling it at times for as much as one hundred feet from face. With these difficulties, progress was necessarily slow. At the end of the year this water-bearing stratum was passing underneath the line of excavation, leaving the tunneling in the

bottom in the soft clay belt. Wherever this has been met excellent progress has been made. It is only fair to assume that during the first months of 1891 the tunnel will be running entirely on top of the water-bearing vein. This will be a great relief to the work, as the tunnels will then be entirely dry. A progress of eighteen feet per day can then be expected unless the clay should become too soft. I submit below tabulated record of progress for each tunnel during each month of the year :

| | MONTHLY PROGRESS. | | DISTANCE FROM GOVERNMENT BREAKWATER. | | DISTANCE FROM SHORE SHAFT. | |
|-----------------|-------------------|---------|--------------------------------------|---------|----------------------------|---------|
| | No. 1. | No. 2. | No. 1. | No. 2. | No. 1. | No. 2. |
| January..... | 302.11 | 313.10 | 1798.61 | 1740.60 | 4158.61 | 4150.20 |
| February..... | 422.50 | 431.90 | 2216.11 | 2172.50 | 4581.11 | 4582.10 |
| March..... | 497.24 | 492.60 | 2713.35 | 2665.10 | 5078.35 | 5074.70 |
| April..... | 390.80 | 414.40 | 3104.15 | 3079.50 | 5469.15 | 5489.10 |
| May..... | 359.20 | 347.08 | 3463.35 | 3426.58 | 5828.35 | 5836.18 |
| June..... | 322.50 | 342.75 | 3785.85 | 3769.33 | 6150.85 | 6178.93 |
| July..... | 498.75 | 440.50 | 4284.60 | 4209.83 | 6649.60 | 6619.43 |
| August..... | 621.50 | 638.50 | 4906.10 | 4848.33 | 7271.10 | 7257.93 |
| September.... | 645.75 | 648.50 | 5551.85 | 5496.83 | 7916.85 | 7906.43 |
| October..... | 239.75 | 369.75 | 5841.60 | 5866.58 | 8206.60 | 8276.18 |
| November..... | 180.45 | 334.25 | 6022.05 | 6200.83 | 8387.05 | 8610.43 |
| December..... | 188.60 | 386.57 | 6210.65 | 6587.40 | 8575.65 | 8997.00 |
| Total for Year. | 4719.50 | 5159.90 | ..... | ..... | ..... | ..... |

Distance between headings No. 1 East Breakwater and No. 1 West, two and one-half miles, 4,621 feet.

Distance between headings No. 2 East Breakwater and No. 2 West, two and one-half miles, 4,123 feet.

TWO AND ONE-HALF MILE CRIB.

Shoe of shaft was at 83.5, with water running in in a large stream under shoe. An attempt was made to shut it off by means of oak sheathing driven around the circumference, but this scheme failed of its object. At the end of January, it was decided to place an eight-foot shield at the bottom of the shaft, fitting within four inches of the sides of the old shaft, and by means of hydraulic jacks applied at its top force the shield into the clay below, and thus reach the undisturbed ground and shut off the water from beneath. Excavation could then proceed, and a brick shaft be built lower down. The water would find vent at the top of the shield. After many delays, the water was entirely shut off by means of the shield after it had been driven four feet three inches below the shoe. By Thursday, the 28th of February, six feet of brick shaft had been successfully built below the shield, the inside of the brick work being flush with the shield lining, with the bottom of the shaft at ninety-six feet six inches below city datum.

As there had been so much disturbance of the soil, it was thought well to delay the commencement of tunneling from the shaft for a month or six weeks. During this time the shaft would fill with water, and the sand and clay pack itself tightly around the shaft and fill the voids formed outside the shaft by the running in of the silt gravel and water. Before allowing the shaft to fill with water, it was deemed advisable to line the shaft with four inches of brick lining, and inside of this brick lining set in another shield and concrete in between the shield and the course of brick work. This lining was carried up twenty-three feet six inches, and served to cover a break in the cast iron shaft in top of third section and bottom of fourth section of shaft, counting from the bottom upward. This break was caused by the uneven settlement of the crib, the shaft in consequence coming in contact with some of the timbers of the crib. This settlement caused a break which opened up three feet six inches on the N. N. E. quarter, and running around the shaft diminished to nothing at a point diametrically opposite. By Thursday, March 27th, one section of this lining remained to be put in place, and work of cutting eye for tunnel was to begin on the following Monday morning. These plans were again upset by the strong northeast gale of the 27th. The seas were running high on the morning of this date, but late Thursday night and early Friday morning the wind increased in violence. The light superstructure of the crib began to go to pieces. The sea first gained an entrance on the northeast corner, the direction from which the gale was blowing. Two of the main uprights on the northeast were carried away. The roof, losing its support, dropped to the floor below. Nearly all of the flooring of the lower floor on north and east was washed away. The second floor of the crib was not badly damaged, some of the flooring remaining in place. On the southwest corner of this floor the twenty-three men quartered on the crib found shelter until taken off by the life-saving crew, assisted by tug boats, during the following day (Friday).

Work of rebuilding the crib was not begun until the middle of March. It was decided to raise what remained of the superstructure and build the body of the crib to an average height of nine feet four inches above the water. This work was carried on during April and May, and the lower portion of the crib was floored over and completed by June 7th. Work on the superstructure was to be delayed until after the completion of the shaft. Two boilers were set up on the 14th. Pumps were placed in position, and by the 19th the shaft had been pumped out to within twenty feet of the bottom. Work of removing the sand which had collected in the bottom of the shaft was slow and tedious. An immense stream of water was running in at the top of the lower shield. It appeared as though it might be impossible to get below this point by the ordinary means of shaft sinking, and the advisability of using compressed air was considered. To complicate matters still further, as the sand was removed, it was found that the lower

shield lining had been forced in by the pressure and at its bottom was bulged out into the shaft three feet six inches, making the section of the shaft below the original shoe very much smaller. Before proceeding further it became evident that in order to complete the shaft the superstructure would have to be built, and the men boarded on the crib. Accordingly, work on the superstructure was begun early in July. By the 12th it was practically complete. Four pumps were hung in the shaft and work was begun again on the 16th. When the lower shield lining was reached, it was, as stated before, found entirely forced out of position on the south side. Work of removing sand was carried on with great difficulty below this point, but at the close of the month the bottom was finally reached and the shaft was ready for tunneling. Owing to the constant pumping and running out of quicksand the crib had been constantly settling. After being rebuilt to a height of nine feet four inches above lake level it was now standing on an average of only six feet out of water. Three or four days were necessary to complete the first three feet length of tunnel. Many delays were caused by gas, quicksand and stoppages of pumps, but after twenty-four days' work sixty feet of this north lateral tunnel were built.

At this point borings were made to determine if it would be advisable to start the construction of one eight-foot tunnel. A boring made in the roof showed two feet ten inches of hard pan, and immediately above this was the wet silt stratum, which had caused so much trouble in the shaft. In the bottom the boring showed all wet silt. It was therefore decided to commence the construction of two six-foot tunnels instead of one eight-foot. The cage and other necessary appliances were put in position during the latter part of September. The eye for the north tunnel to shore was cut on the twelfth. When six feet of tunnel in this drift had been built, a complete stoppage was again caused by another influx of sand and water from the shaft. The tunnels were completely filled with sand and the water rose rapidly in the shaft. At this point it was decided to remove the lower shield lining and replace it with brick, for the reason that as long as the shield was in place it was impossible to make the shaft water-tight. The removal of the shield was slow, and had to be carried on with great caution. It was finally taken out, section by section, and replaced with brick-work, as described, and completed by the 27th of September. The tunnels were again pumped out, and the northerly tunnel, in the direction of the four-mile crib, was begun on October 1st, and pushed to a distance of sixteen feet, when an immense amount of water was encountered, and the miners were forced to abandon it. Three bulkheads had to be built before it was possible to shut off the water. Further trouble was experienced, owing to the constant explosions of gas. Work on the south lateral tunnel was begun on the sixth. The ground on the south proved to be drier, and work was carried on uninterrupted until the twelfth, when fifty feet of the south lateral was

completed. Work on the parallel six-foot tunnel to shore was started immediately, but it also was closed down after thirty-eight feet had been built. Three of the four tunnels had thus been started and in turn each was shut down after repeated attempts at tunneling. On the 29th of October work on this crib was entirely suspended. A compressed air plant will be put in operation early in 1891, when, it is hoped, the flow of water and silt will be controlled, and tunneling can be carried on continuously.

FOUR-MILE CRIB.

Work on this crib was resumed on June 10th after being closed down during the winter and spring. All of the twenty-four compartments surrounding the inner well were filled with concrete during June and July. Laying of granite coping both on the outside and on the inside rings of iron was commenced on the 28th of July. This coping is carried ten feet (five courses) above the steel caisson on the outside and eight feet (four courses) on the inside. The top of the granite coping on the outside is at an elevation of + 16.5. The concrete filling is carried up between the granite walls. Two or more additional courses will be needed on the outside wall on this structure before its completion. During heavy storms the seas sweep entirely over it. A temporary ten-foot wooden bulkhead has been constructed by the contractor on the east and northeast. This gives protection at present. During the latter part of September the inner well was pumped out and the temporary trusses removed. A three-foot bed of concrete was laid over the bottom of the well. This brings the top line of the concrete level with the bottom of the ports. During October a ten-foot cast iron shaft was sunk to a depth of 103.2 feet and underpinned with 8.33 feet of brick work. The bottom of the sump is — 98.1 feet below city datum. Borings were made in advance of the sinking of the shaft. At — 103.0 feet a wet silt stratum was struck, carrying water under a head of thirty feet. At a depth of — 116.0 feet another quicksand bed was struck which carried water under a head of 83.0 feet. The bottom of shaft was placed at a point just above the first stratum mentioned. During December the top three sections of shaft were put in position. This includes the gate section with three gates. Quarters were built for the men, and everything put in readiness for the commencement of tunneling early in the new year.

SOUTH SIDE PUMPING STATION.

Work on all four foundations for the engines at this station was completed on April 25th. Three foundations were entirely completed and made ready for the engines. The fourth foundation, that on the north-west, was carried only to the basement level. During January the wet-well was sunk, and tunnel connections were made between wet-well and main-pit, and later

between the shaft and wet-well. Early in April it was noticed that the eye-beams, set just above the arched ways or openings for suction pipes, and between the south-east and north-east foundations, were buckling a trifle, some in a horizontal direction and others in a vertical direction. The only inference was the foundations were being forced out of position by the pressure from the swelling clay in the banks. No crack or settlement could be detected, so the conclusion was that the foundations, including the piling below, was moving as a whole. Timbers were immediately set in, running north and south between the foundations, and later between the ends of foundations, in an east and west direction. After this no further movement was detected. The entire bottom was afterward leveled up with concrete and an inverted arched bottom built in covering the timbers. This bottom was completed on June 7th. Work on the building was commenced later. The original intention was to move the south line of Fourteenth street to the south, and have the front wall of the pumping station placed on the old center line of Fourteenth street. This would allow increased floor space in the engine room between the front wall and the south line of the south engine bed plates. In order, however, to economize space and for the further purpose of finding a location for the electric light station of this district, it was decided not to utilize the fifty-foot corner lot bought on Indiana avenue, immediately in front of the pumping station, as a street, but to move the front wall of the building fifteen feet nearer the south engine foundations, and reduce the width of the street to fifty feet. Further than this, work on the two extra foundations, which had been planned for the fifty-foot addition on the north, to the building was stopped. The building proper was begun on July 17th. This work since has been carried on under the supervision of the architect.

Respectfully submitted,

WM. A. LYDON,

Assistant Engineer in charge.

EXHIBIT "K."

ARCHITECTURAL DEPARTMENT.

CHICAGO, January 1, 1891.

A. W. COOKE,

City Engineer.

DEAR SIR :—I present herewith the annual report of the Architectural Department of this office for the year ending December 31, 1890, showing the number of buildings designed and supervised for the different city departments.

CENTRAL PUMPING STATION.

The foundation for the pumps were built by the city, and work at the building was actually commenced in March, 1889. The building was erected, the iron roof put on, and enclosed in very short time. The erection of the engines caused some delay in the inside finishing of the house. The second battery of boilers have been set and the building entirely completed, with the exception of the west ten feet of boiler room and coal shed, which, on account of a claim by parties owning the land west of the pumping station and the interference of the courts, could not be finished.

PUMPING STATION AT FOURTEENTH STREET AND INDIANA AVENUE.

Work at the building was commenced in July, 1890, and was progressing satisfactorily at the close of the year. The stack is finished, the walls of the building have been run up, and the iron roofs over engine room and boiler house are nearing completion. The boiler foundations are in place, and the boilers, etc., are being blocked up and will be ready for setting within a few days. In the engine room the iron floor beams are in place, the lower portions of the pumping engines erected, and within two weeks the building will be far enough advanced to proceed with the erection of the engines. In the coal shed the railroad track is in and the foundation for the railroad scales in place.

ELECTRIC LIGHT STATION.

Work at the electric light station, at the southwest corner of Fourteenth street and Indiana avenue, was begun early in June and without interruption was progressing satisfactorily. The iron roof had scarcely been on when work on the foundation for engines, pumps, boilers, etc., was begun. Some delay was caused in securing the machinery and boilers.

Cost of the building (not including any machinery) \$14,592.00.

POLICE STATIONS.

Early last spring the unfinished police station at the southwest corner of Halsted and Matteson streets (town of Lake) was turned over to this department for completion.

The building as originally designed did in no way fulfil the requirements of the police department and it was necessary to make considerable changes.

The police station and engine house at northwest corner of Larrabee street and North avenue received a new stone sidewalk, which was laid by the Western Stone Company.

Cost, including repairing of curb and area walls, etc., \$1,689.00.

FIRE ENGINE HOUSES AND HOOK AND LADDER STATIONS.

Completing the unfinished hook and ladder station at southwest corner of Halsted and Matteson streets (town of Lake).

Two-story frame fire engine house, at Fifty-fifth street near Kimbark avenue. James Perrott, contractor. Cost, \$2,350.00.

Two-story frame fire engine house at northwest corner of Hundred and fifth street and Hoxie avenue. Ed. Payette, contractor. Cost, \$1,550.00.

Two-story frame fire engine house at southwest corner of Fifty-third street and Wentworth avenue. Ed. Payette, contractor. Cost, \$2,950.00.

Two-story frame fire engine house at southwest corner of Balmoral and Ashland avenues. Peter Jung, contractor. Cost, \$1,795.00.

Hook and ladder station at Sixty-ninth street, between Wright street and Stewart avenue. Alb. C. Berndt, contractor. Cost, \$2,350.00.

Two-story frame fire engine house at Irving Park. Ch. Stolzenbach, contractor. Cost, \$1,640.00.

Two-story frame fire engine house, with tower, at south-east corner of Fortieth and Dearborn streets. I. Campbell, contractor. Cost, \$3,450.00.

Alteration and addition to fire engine house at No. 86 West Erie street. Hansen & Wilke, contractors. Cost, \$5,275.00.

Completing the two-story brick fire engine house at Central avenue, near South Halsted street. [The rough portions of this building were erected by the Union Stock Yards Company, and turned over to this department for completion.]

In addition to above the following buildings were designed, but erection of same postponed:

Two-story frame fire engine house to be erected at Michigan street, near One Hundred and Fifteenth street.

Two-story frame fire engine house to be erected at Ewing avenue, near One Hundred and Sixth street.

Two-story frame fire engine house to be erected at Laffin street, near Sixty-third street.

HOUSE OF CORRECTION.

At the House of Correction the new boiler house was completed, the rear portion of the administration wing erected and some parts of it completed. Most of this work was done by the institution.

Finally this department prepared a set of plans and specifications, etc., for a city morgue.

Respectfully,

JOHN P. HETTINGER,

Architect.

EXHIBIT "L."

CANAL PUMPING WORKS.

CHICAGO, January 1, 1891.

A. W. COOKE,

City Engineer.

DEAR SIR:—I herewith submit the Annual Report of the operation of the Canal pumping works, being for the year ending December 31, 1890 :

The four (4) engines located at these works have been running very steadily during the year just closed, the only stoppage of any consequence being during the months of January and February, when all engines were shut down for seven weeks on account of the digging out of the inlet channel.

The digging out of the inlet channel has greatly benefited us, as we have a greater supply of water to pump from ; this, with the increased amount of speed at which we have run the engines, has kept the river in a cleaner condition the past year than it has been in previous years.

The boilers are in good condition and have received about the usual amount of repairs during the year.

It will be necessary during the coming year to put in seven new sheets of steel boiler plating and one new mud drum.

The east sides of the two boiler houses have been newly roofed.

It was necessary to keep a gang of men employed on the screen the year around, to keep the driftwood and other material from accumulating. This screen has been a heavy expense on these works, which I think should be borne by the River and Harbor Department.

A furnace has been built at the mouth of the inlet channel, for burning up the mass of bark and other refuse that gathers in front of the screen.

The front yard has been all newly cindered and leveled off, and new sidewalks have been laid from the works to Ashland avenue. A new fence has been erected on Ashland avenue, and trees have been planted on the south side of the engine house, giving the works a most tidy appearance.

The consumption of fuel has been very heavy, partly caused by eight two-inch syphons that are used to keep the water out of the engine pits. This water leaks through the foundations, principally on the canal or outlet side. I have run the injection pipes from the air pumps into these pits and in this manner take the water out, thereby doing away with the eight syphons. Altogether this will be a great saving in coal next year.

I have, also, attached floats to the feed-water heaters, which keeps the feed water at a more even temperature. This will also reduce the coal bill.

I would recommend the adoption of a more economical method of lubricating the crank-pins, cross-heads and bearings than the one in use here at present, which is very wasteful.

TABLE SHOWING THE OPERATIONS OF THE ENGINES AT
THE CANAL PUMPING WORKS FOR 1890.

| MONTHS. | Number of hours per month. | | | | Average number of revolutions per minute. | Water Inlet. | Water Outlet. | Average Head. | Pounds of coal consumed per month. | REMARKS. |
|-----------------|----------------------------|---------------|---------------|---------------|---|--------------|---------------|---------------|------------------------------------|---|
| | Engine No. 1. | Engine No. 2. | Engine No. 3. | Engine No. 4. | | | | | | |
| January ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 74,525 | All engines under repair. All engines started 25th February. |
| February | 72 | 72 | 72 | 72 | 76½ | 4 | 41 | 37 | 232,800 | |
| March | 624 | 642 | 730 | 737 | 78½ | 3 | 47 | 44 | 1,776,400 | |
| April | 719 | 720 | 713 | 719 | 81½ | 6 | 52 | 46 | 2,082,575 | |
| May | 743 | 744 | 744 | 740 | 82 | 8 | 55 | 47 | 2,133,273 | |
| June | 708 | 715 | 720 | 720 | 84 | 11 | 54 | 43 | 2,074,320 | |
| July | 742 | 739 | 734 | 739 | 84 | 12 | 55 | 43 | 2,523,530 | |
| August | 727 | 740 | 740 | 741 | 83½ | 11 | 56 | 45 | 2,568,250 | |
| September | 704 | 716 | 720 | 716 | 84¼ | 9 | 55 | 46 | 2,351,125 | |
| October | 740 | 744 | 737 | 740 | 84¾ | 8 | 55 | 47 | 2,327,322 | |
| November | 715 | 716 | 718 | 718 | 83 | 4 | 53 | 49 | 2,376,375 | |
| December | 456 | 740 | 744 | 744 | 80 | 3 | 46 | 43 | 2,034,975 | No. 1 engine under repair. |
| TOTAL | 6,960 | 7,288 | 7,372 | 7,386 | ..... | ..... | ..... | ..... | 22,516,470 | |
| AVERAGE ..... | ..... | ..... | ..... | ..... | 82 | 7.18 | 51.73 | 44.55 | ..... |  |

DEPARTMENT OF PUBLIC WORKS.

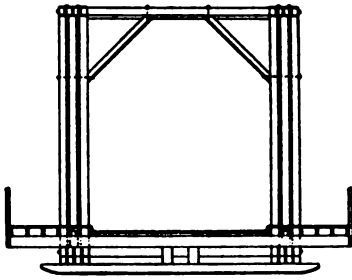
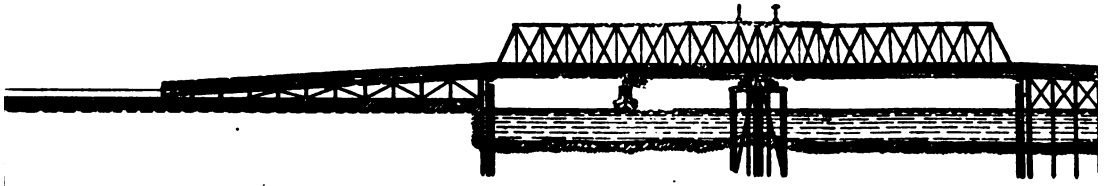
The expenditures of the Canal pumping works and locks for the year ending December 31, 1890, were as follows:

| | | |
|---|----------|----|
| Salaries of engineers, firemen, oilers, and laborers..... | \$23,266 | 47 |
| William Cook's account for locks..... | 2,700 | 00 |
| Coal account..... | 31,349 | 44 |
| Repairs and iron work..... | 1,114 | 71 |
| Supplies, waste, and packing. | 1,277 | 72 |
| Oil, paint and grease..... | 1,015 | 35 |
| Total..... | \$60,723 | 69 |

Respectfully yours,

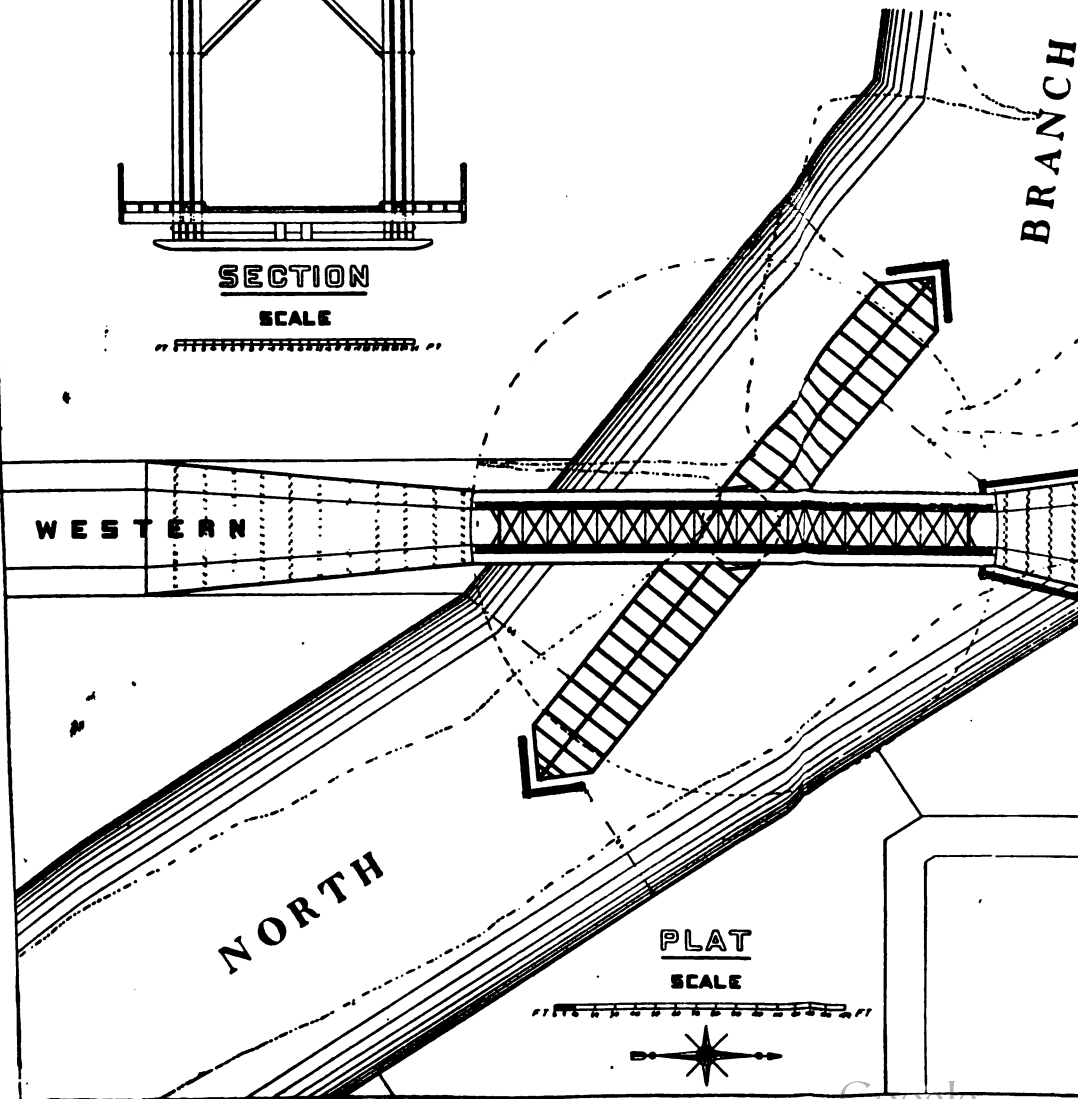
T. E. BELTON,

Engineer in charge Canal Pumping Works.



SECTION

SCALE



PLAT

SCALE



The
ending D.

Salaries C

William C

Coal acc C

Repairs a

Supplies,

Oil, paint

MSB 1 73

NOTED

EXHIBIT "M."

FULLERTON AVENUE PUMPING STATION.

CHICAGO, January 1, 1891.

A. W. COOKE,

City Engineer.

DEAR SIR:—I have the honor of submitting to you the Tenth Annual Report of the operation of these works, being for the year ending December 31, 1890.

The engines are in fair order, but will require considerable repairs this year. The boilers are in good order. On January 23, City Engineer Northway ordered the speed of the engines to be reduced so as to barely keep a current through the conduit until the inlet at the Canal pumping works was in working order. We stopped twenty-one days in April to overhaul, five days in May on account of high water and rapid current in river, sixteen days in September for repairs to pumps, and two and one-half days in October for repairs to steam pistons. The coal shed is in very bad condition and will require a new roof and floor.

A. D. HOWELL,

Engineer in charge.

TABULAR STATEMENT OF THE FULLERTON AVENUE PUMPING STATION, 1890.

| 1890. | | MEMORANDA. | | | | | | | | | |
|----------------|-------|--------------------------------|--|--|--------------------------------------|--|---|--|--|--|--|
| MONTHS. | | Number of Hours Run per Month. | Total Number of Revolutions per Month. | Average Number of Revolutions per month. | Average Head of Water against Pumps. | Total Number of Cubic Feet of Water Pumped into the River. | Average Number of Cubic Feet Pumped per Minute. | Pounds of Coal Consumed for Pumping per Month. | Pounds of Coal for Heating Boilers and Pumping out Tunnel per Month. | { Stopped 21 days to overhaul engine. { Stopped 5 days, heavy current in river. { Stopped 16 days to repair bearings on shaft. | |
| January..... | ..... | 716.40 | 2,538,928 | 59.67 | 1.85 | 539,615,330 | 12,318 | 418,250 | 2,500 | | |
| February..... | ..... | 613.00 | 1,730,868 | 47.64 | .99 | 317,528,990 | 8,959 | 306,300 | 1,000 | | |
| March..... | ..... | 692.00 | 2,423,526 | 58.19 | 1.33 | 430,944,290 | 10,379 | 384,500 | 1,000 | | |
| April..... | ..... | 217.00 | 779,107 | 59.29 | 1.35 | 138,220,350 | 10,692 | 188,700 | 2,000 | | |
| May..... | ..... | 573.00 | 1,863,805 | 60.01 | 1.42 | 373,679,410 | 10,899 | 354,250 | 1,000 | | |
| June..... | ..... | 702.00 | 2,750,218 | 65.13 | 1.84 | 512,051,630 | 12,156 | 427,250 | 2,000 | | |
| July..... | ..... | 738.30 | 2,873,818 | 65.43 | 2.06 | 567,383,400 | 12,804 | 453,750 | 1,000 | | |
| August..... | ..... | 720.00 | 2,902,553 | 67.04 | 2.15 | 576,998,490 | 13,356 | 457,250 | 4,000 | | |
| September..... | ..... | 328.00 | 1,230,293 | 65.31 | 2.09 | 259,946,290 | 13,178 | 218,000 | 20,000 | | |
| October..... | ..... | 661.50 | 2,642,229 | 66.34 | 2.20 | 538,168,520 | 13,476 | 431,250 | 2,000 | | |
| November..... | ..... | 700.30 | 2,838,417 | 67.14 | 2.25 | 572,171,400 | 13,861 | 557,500 | 2,000 | | |
| December..... | ..... | 592.55 | 2,387,802 | 67.16 | 2.23 | 498,506,550 | 13,528 | 399,500 | 2,000 | | |
| TOTALS..... | ..... | 7,255.25 | 23,991,134 | ..... | ..... | 5,296,597,530 | ..... | 4,496,750 | 40,500 | | |
| Average..... | ..... | ..... | ..... | 62.36 | 1.83 | ..... | 12,135 | ..... | ..... |  |  |

EXHIBIT "N."

WOODLAWN PUMPING WORKS.

CHICAGO, January 1, 1891.

A. W. COOKE,
City Engineer.

DEAR SIR:—I herewith present the following report for the year 1890: The engines are Gordon-Maxwell sewage pumping engines of the compound duplex pattern, and two have independent condensers attached to them.

The following is the area and capacity of them:

Engine Number 1.—Estimated capacity at 100 feet piston speed per minute: one million and a half gallons in twenty-four hours. Engine Number 1 is non-condensing. Discharge pipe ten inches in diameter, lift from well fifteen feet. Head, when running alone, about four pounds pressure per square inch.

Engine Number 2.—Discharge pipe twelve inches in diameter. Head, when in operation alone, four pounds pressure to square inch. Engine Number 2, at one hundred feet of piston stroke per minute, estimated capacity 3,000,000 gallons per twenty-four hours.

Engine Number 3 is an exact duplicate of Number 2. The lift is the same and head the same when in operation alone. The discharge pipes of Engines 2 and 3 connect with an eighteen-inch pipe into which Engine Number 1 connects. The eighteen-inch pipe is laid in a north-easterly direction from pumping works to the Fifty-sixth street sewer, near its outlet into Lake Michigan. Length of eighteen-inch pipe from pumping works to Fifty-sixth street sewer, about four thousand feet. The well or cesspool that all the sewers of this district flow into is twenty-one feet in diameter and twenty feet in depth, from lot grade, but there is never more than eight feet of sewage in the well at the greatest precipitation, and at other times not more than three feet, thereby causing the running of only one engine at a time.

SUMMARY FOR THE YEAR 1890.

| MONTH. | Gallons Pumped. | Salaries. | Coal. |
|-------------------|--------------------|-------------------|-------------------|
| January | 35,182,223 | \$ 425.00 | \$ 87.72 |
| February..... | 26,806,870 | 400.00 | 78.96 |
| March..... | 33,925,478 | 393.55 | 121.44 |
| April..... | 35,966,746 | 400.00 | 100.26 |
| May..... | 37,115,104 | 400.00 | 155.58 |
| June..... | 33,096,436 | 400.00 | 24.48 |
| July..... | 30,100,214 | 400.00 | 82.58 |
| August..... | 25,873,440 | 400.00 | 87.78 |
| September..... | 22,321,406 | 400.00 | 78.96 |
| October..... | 26,609,442 | 400.00 | 76.83 |
| November..... | 28,655,412 | 400.00 | 79.74 |
| December..... | 28,453,068 | 400.00 | 87.10 |
| TOTAL..... | 364,109,341 | \$4,818.55 | \$1,060.83 |

Supplies to the amount of \$86.83. Some supplies were furnished by the Sixty-eighth street pumping station, and I cannot give their cost, but in all probability the expenses did not exceed the sum of \$6,300.00, or about \$17 per million gallons, which is rather expensive; but we could pump three times that amount at but very little more expense.

Yours respectfully,

WM. F. TWOMEY,

Engineer in charge.

EXHIBIT "O."

HARBOR REPORT.

CHICAGO, February 3, 1891.

A. W. COOKE,

City Engineer.

DEAR SIR :—I respectfully submit the following report of operations in connection with the Harbor of Chicago during the year ending December 31st, 1890:

To avoid as much as possible the inconvenience to navigation arising from working a large number of dredges in the river during the season, it was decided to remove the most prominent obstructions before the season fairly opened. Accordingly, in March and April of last year many of these obstructions were removed. On May 2d the contracts for dredging were let as follows: Sections 5 and 13 to the FitzSimons & Connell Company; Sections 3 and 9 to the Chicago Dredging & Dock Company, and Sections 1, 2, 4, 8, 10, 11 and 12 to the Green's Dredging Company.

The following is a statement of the total dredging done during the year, by sections, with the cost of the same:

| | |
|--------------------------------|-------------|
| Section 1, 6,181 yards..... | \$ 1,617 28 |
| Section 2, 30,114 yards.... | 8,866 33 |
| Section 3, 18,845 yards..... | 5,776 95 |
| Section 4, 12,946 yards..... | 4,846 13 |
| Section 5, 27,242 yards..... | 9,770 82 |
| Section 8, 12,085 yards..... | 3,851 08 |
| Section 9, 3,004 yards..... | 1,081 44 |
| Section 10, 10,341 yards | 3,154 01 |
| Section 11, 1,286 yards..... | 450 10 |
| Section 12, 11,475 yards..... | 4,073 62 |
| Section 13, 40,535 yards..... | 14,592 25 |
| Calumet, 5,725 yards..... | 1,202 25 |

Total dredging during the year cost \$59,282.61, for 179,279 yards, which consists of the work done at many points under the special orders of the Commissioner of Public Works, amounting to 94,433 cubic yards, at a cost

of \$30,161.49, and the work done under the contracts dated May 2, 1890, amounting to 84,841 cubic yards, at a cost of \$29,121.12. The average cost per cubic yard of work done under contract, 34.3 cents; cost per cubic yard of work done by Commissioner's orders, 31.9 cents, being a gain or saving of two and one-half cents nearly on each yard of work done under Commissioner's orders over that done under contract, equal to a saving of \$2,266.51.

The inlet to the Canal pumping works having been choked by a mass of deposit, which extended as far as the face of the engine house, so that it was impossible to get from the pumps anything approaching their average efficiency, it was decided to remove all these obstructions, and for this purpose on January 18th I commenced the construction of a coffer-dam, redan-shaped, across the mouth of the inlet against a head of eighteen feet of water for a length of one hundred and six feet. The dam was eighteen feet wide and was carried up to about five feet above city datum. It was braced at the water line and again at the center of pressure, the strains being conveyed to the center, and the resultants led off to the piling of the dockage at each side of the inlet. The deposit was of a nature very difficult to handle, consisting of clay, cedar bark, barrel hoops, etc., all thoroughly mixed, and amounted to about 6,000 cubic yards. Much resistance arose from the screen across the mouth of the inlet, as its blades made an angle of about twenty-five degrees with the axis of the inlet. This was remedied, after all the obstructing matter was removed, by altering its position by moving it on its northern end as a center, a distance of about twenty-five degrees, so as to bring its blades parallel with the axis of the inlet. The improvement of the inlet was completed and the dam entirely removed by the end of February. The material of the dam and its bracing was delivered to the Bridge Superintendent, much of it being available for repairs. The cost of whole improvements, exclusive of the pay roll of the men, was \$8,894.11.

In the estimate for the harbor for the year 1890 no provision was made for work not contemplated at its date, but which became necessary during the year. At the North Western avenue bridge, the bridge location and the construction of a private dock on the north side of the river, west of the bridge, to a great extent closed the natural channel there and a new water-way had to be opened before the construction of the dock was permitted. The work at Canal street was needed by reason of the channel being occupied by the center pier of the bridge there, and a new channel had to be dredged to a distance of 400 feet from each end of the bridge protection, so as to allow the passage of the heaviest draft vessels. At Ninety-fifth street bridge on the Calumet river the dredging was a necessary preliminary to the construction of the new bridge at that point. It was found that a bar had formed in front of the river mouth of the - - - - -venue conduit, to a

large degree obstructing the discharge into the river at that point. In places the water was no deeper than two feet. This bar was removed and the whole area from the mouth of the conduit to the channel was dredged to a depth of fourteen feet below city datum. Because of want of funds in the appropriation of the harbor the cost of the work at these points was borne (in the first two cases only partly) by their respective funds as follows:

| | | |
|--|-----------------------|-------------|
| Canal street bridge. | 8,718 yards. | \$ 2,701 08 |
| North Western avenue bridge. | 36,878 yards. | 18,276 08 |
| Ninety-fifth street bridge, Calumet. | 5,725 yards. | 1,202 25 |
| Fullerton avenue pumping works. | 4,041 yards. | 1,484 55 |

After the roof of the tunnel at Washington street was lowered to about seventeen feet below city datum it was found that the piling used in the coffer-dam of the original construction there, which was sawed off at about fourteen feet below datum, became an obstruction in times of very low water. In consequence this piling had been driven down to eighteen feet below city datum, and the piling at La Salle street tunnel, left after the original coffer-dam there, has been treated in a similar way.

During the year the west half of the tunnel for the West Chicago Street Railway, just north of Van Buren street, has been constructed; the coffer-dam there extending eastward a little beyond the east line of Van Buren street bridge protection produced.

Surveys and data for the condemnation of lands on the east side of the river south of Van Buren street bridge; on the east side of the river north and south of Canal street as carried across the South Branch, and on the west side of the river north and south of Eighteenth street bridge have been furnished. The former, I understand, has been abandoned, though the widening of the river at that point is a necessity. For the condemnation proposed at the other two places estimates for the necessary dredging and docking have been made this year, amounting to \$8,780.49 and \$18,711.70, respectively.

The freedom of navigation would be greatly promoted by widening the river at the following places, viz: At Fuller street bridge, on the west side; at the C., M. & St. P. Ry. bridge, near Clybourn place, on the east side; and south of Webster avenue bridge, on the east side of the river.

The following is the annual expenditure on account of Chicago Harbor made by the city and by the United States, commencing with the year 1861:

| YEAR. | CITY. | | UNITED STATES. | |
|------------|------------|----------------|----------------|----------------|
| 1861..... | \$ 291 25 | Prior to 1861. | \$267,601 00 | |
| 1862..... | 507 99 | | | |
| 1863..... | 30,255 67 | | | |
| 1864..... | 52,097 51 | | 25,000 00 | |
| 1865..... | 115,840 95 | | | |
| 1866..... | 25,851 58 | | 88,704 00 | |
| 1867..... | 23,830 58 | | | |
| 1868..... | 82,405 63 | | 35,000 00 | |
| 1869..... | 65,485 12 | | 29,700 00 | |
| 1870..... | 120,265 08 | | 100,000 00 | |
| | | 516,332 36 | | 546,005 00 |
| 1871..... | 30,750 62 | | 100,000 00 | |
| 1872..... | 45,944 95 | | 90,000 00 | |
| 1873..... | 80,575 00 | | 90,000 00 | |
| 1874..... | 64,483 60 | | 75,000 00 | |
| 1875..... | 45,040 98 | | 78,000 00 | |
| 1876..... | 22,659 16 | | 5,000 00 | |
| 1877..... | 82,072 33 | | | |
| 1878..... | 50,768 45 | | 75,000 00 | |
| 1879..... | 56,885 71 | | 75,000 00 | |
| 1880..... | 5,114 48 | | 145,000 00 | |
| | | 484,295 28 | | 733,000 00 |
| 1881..... | 4,749 11 | | 150,000 00 | |
| 1882..... | 24,190 80 | | 200,000 00 | |
| 1883..... | 10,555 31 | | | |
| 1884..... | 7,431 56 | | 100,000 00 | |
| 1885..... | 7,405 10 | | | |
| 1886..... | 10,136 67 | | 75,000 00 | |
| 1887..... | 37,187 12 | | | |
| 1888..... | 49,538 56 | | 200,000 00 | |
| 1889..... | 77,232 56 | | | |
| 1890..... | 59,282 61 | | 100,000 00 | |
| | | 287,709 40 | | 825,000 00 |
| TOTAL.. .. | | \$1,288,336 04 | | \$2,104,005 00 |

The diagram on Plate X of the appendix shows the population, commerce by lake, tolls collected at the Illinois and Michigan canal, expenditures for the harbor, mean level of Lake Michigan, highest and lowest water of the same, from year to year, 1854 to 1890. The curve of annual expenditure and that of lake commerce shows a most decided agreement, an increase or decrease in the former invariably producing a corresponding change in the latter.

Examining the table of expenditures for Chicago harbor yields some marked results. We see that the great development of the commerce of the port finds some correspondence in the average annual expenditure by the

general government. These figures, by decades, show during the period 1871 to 1880, an increase of \$454,596 over that for the years 1861 to 1870, or an average increase of \$45,460 per year, while the expenditures of the city for the inner harbor for the period 1871 to 1880 shows a falling off from those of the years 1861 to 1870 of \$32,037.08, or \$3,204 per year. The figures for the past decade show this difference to a much more defined degree. The United States, during 1881 to 1890, expended on the outer harbor \$92,000 more than the total for 1871 to 1880, or an increase of \$9,200 per year, while the city, for the inner harbor, expended \$196,585.88 less than for the years 1871 to 1880, a decrease per year of \$19,659, as compared with the expenditure per year 1871 to 1880, which, as has been above shown, was also a decrease on the expenditures of the preceding decade.

COMMERCE.

Owing to the destruction of records in the great fire, the arrivals and clearances for 1859, 1860 and 1861 are not obtainable. The Board of Trade reports show the following:

| YEARS. | Arrivals Vessels. | Tonnage. | Clearances Vessels. | Tonnage. | Tolls Illinois and Michigan Canal. |
|--------|-------------------|-----------|---------------------|-----------|------------------------------------|
| 1854 | 6,882 | 1,644,060 | 6,768 | 1,640,648 | \$197,171.00 |
| 1862 | 7,417 | 1,931,692 | 7,270 | 1,915,554 | 264,657.00 |
| 1863 | 8,678 | 2,172,611 | 8,458 | 2,161,221 | 210,386.00 |
| 1864 | 8,938 | 2,172,866 | 8,824 | 2,166,904 | 156,607.00 |
| 1865 | 10,112 | 2,106,859 | 10,067 | 2,092,276 | 300,810.00 |
| 1866 | 11,084 | 2,258,572 | 11,115 | 2,361,520 | 302,958.00 |
| 1867 | 12,230 | 2,588,527 | 12,140 | 2,512,676 | 252,281.00 |
| 1868 | 13,174 | 2,984,591 | 13,225 | 3,020,812 | 215,720.00 |
| 1869 | 13,730 | 3,123,400 | 13,872 | 3,149,946 | 238,759.00 |
| 1870 | 12,739 | 3,049,265 | 12,438 | 2,983,942 | 149,635.00 |
| 1871 | 12,320 | 3,096,101 | 12,312 | 3,082,235 | 159,050.00 |
| 1872 | 12,824 | 3,059,752 | 12,531 | 3,017,790 | 165,874.00 |
| 1873 | 11,858 | 3,225,911 | 11,876 | 3,338,803 | 166,641.00 |
| 1874 | 10,827 | 3,195,633 | 10,720 | 3,134,078 | 144,831.00 |
| 1875 | 10,488 | 3,122,004 | 10,607 | 3,157,051 | 107,081.00 |
| 1876 | 9,621 | 3,089,072 | 9,628 | 3,078,264 | 113,293.00 |
| 1877 | 10,233 | 3,274,332 | 10,284 | 3,311,083 | 96,913.00 |
| 1878 | 10,490 | 3,608,534 | 10,494 | 3,631,139 | 84,330.00 |
| 1879 | 11,859 | 3,887,095 | 12,014 | 3,870,300 | 89,964.00 |
| 1880 | 13,218 | 4,616,969 | 13,302 | 4,537,382 | 92,296.00 |
| 1881 | 13,048 | 4,533,558 | 12,957 | 4,228,689 | 85,130.00 |
| 1882 | 13,351 | 4,849,950 | 13,626 | 4,904,999 | 85,947.00 |
| 1883 | 11,967 | 3,812,464 | 12,015 | 5,980,873 | 77,975.00 |
| 1884 | 11,354 | 3,756,973 | 11,472 | 3,751,723 | 77,102.00 |
| 1885 | 10,744 | 3,653,936 | 10,798 | 3,652,286 | 66,800.00 |
| 1886 | 11,157 | 3,926,318 | 11,215 | 3,950,762 | 62,516.00 |
| 1887 | 11,950 | 4,328,292 | 12,023 | 4,421,560 | 58,024.00 |
| 1888 | 10,989 | 4,393,760 | 11,106 | 4,496,898 | 56,028.00 |
| 1889 | 10,804 | 5,102,790 | 10,984 | 5,165,041 | 67,305.00 |
| 1890 | 10,048 | 5,052,172 | 10,085 | 5,063,879 | ..... |

TABLE SHOWING MOVEMENT OF COMMERCE BY PERIODS
AND FROM SELECTED YEARS.

BY PERIODS.

| PERIOD OR YEAR. | TONNAGE, Yearly Average. | | VESSELS, Yearly Average. | | AVERAGE CARGO, Tons. | | REMARKS. |
|--------------------|-----------------------------|--------------|-----------------------------|--------------|-----------------------------|--------------|---|
| | Increase or Decrease. | Per Cent. | Increase or Decrease. | Per Cent. | Increase or Decrease. | Per Cent. | |
| 1862 to 1870 | | | | | | | Tonnage, 4,972,580 Vessels, 21,723 Cargo, 229 tons. |
| 1871 to 1880 | +1,860,771 | 37.4 | +1,028 | 4.7 | 72 | 81 | |
| 1881 to 1890 | +1,869,339 | 27.8 | +418 | 1.8 | 75 | 95 | |

BY YEARS—TEN YEARS APART.

| | | | | | | | |
|-----------|-----------|-------|--------|-------|-------|--------|---|
| 1862..... | | | | | | | Tonnage, 3,947,246 Vessels, 14,670 Cargo, 263 tons. |
| 1870..... | 2,185,961 | 57 | 10,485 | 71.4 | — 22 | — 8.4 | |
| 1880..... | 3,121,144 | 51.7 | 1,348 | 5.85 | +105 | +48.75 | |
| 1890..... | 961,700 | 10.5 | —6,887 | —24.1 | +158 | +46 1 | |

An examination of the foregoing tables shows that while the yearly average of commerce of any decade increases about one-third over that of the preceding decade, the average number of vessels falls off from this uniformity though their average size approaches very generally that rate of increase. A comparison of the years 1880 and 1890 is instructive. The commerce of the latter year is ten and one-half per cent. greater than that for 1880, but the number of vessels engaged in it is over twenty-four per cent. less than the number in 1880, while the size of the average cargo carried in 1890 is over forty-six per cent. greater than that in 1880. All this shows the constantly increasing demand for deeper water in the harbor.

During the year the water in Lake Michigan was extremely low, only three times since 1854 has it been lower, viz., in 1866, 1869, and 1881. For thirty-one days during the year, or one-twelfth of the year, the lake was at or below city datum, and for one hundred and sixty-five days, or nearly half the year, the water went no higher than six inches above city datum. As the channels were dredged to a depth of fourteen feet below datum, a vessel loaded to draw fifteen feet of water would be solidly aground in these conditions. Hence, during the coming year a greater depth must be given to the Chicago river, not less than fifteen feet below datum, if the large class of vessels now entering our port are to continue in our trade.

Table showing levels of Lake Michigan and Chicago river at Chicago Avenue bridge, with high, low and mean water for lake and river; also greatest daily and monthly ranges in the Chicago river for every month of the year 1890.

| MONTH. | HIGHEST. | | | LOWEST. | | | MEAN. | | | GREATEST RANGE, RIVER. | |
|---------------------------|----------|-------|-----------------------|---------|-------|-----------------------|--------|-------|-----------------------|------------------------|----------|
| | River. | Lake. | Difference over Lake. | River. | Lake. | Difference over Lake. | River. | Lake. | Difference over Lake. | Daily. | Monthly. |
| January... | 1.80 | 1.01 | 0.29 | 0.00 | -0.87 | 0.87 | 0.63 | 0.24 | 0.39 | 0.50 | 1.80 |
| February.. | 1.60 | 0.68 | 0.92 | 0.10 | -0.42 | 0.52 | 0.65 | 0.15 | 0.50 | 0.50 | 1.60 |
| March | 1.80 | 1.31 | 0.49 | -0.1 | -0.49 | 0.39 | 0.61 | 0.14 | 0.47 | 0.60 | 1.90 |
| April..... | 1.80 | 2.21 | -0.41 | 0.50 | -0.49 | 0.99 | 0.96 | 0.41 | 0.55 | 0.90 | 1.80 |
| May..... | 2.00 | 1.31 | 0.69 | 0.60 | 0.01 | 0.59 | 1.18 | 0.65 | 0.53 | 1.80 | 1.40 |
| June..... | 1.90 | 1.51 | 0.39 | 1.20 | 0.41 | 0.79 | 1.57 | 1.07 | 0.50 | 0.50 | 0.70 |
| July..... | 2.70 | 1.61 | 1.09 | 1.40 | 0.21 | 1.19 | 1.74 | 1.04 | 0.70 | 0.70 | 1.80 |
| August.... | 2.20 | 1.71 | 0.49 | 1.80 | 0.71 | 0.59 | 1.67 | 1.16 | 0.51 | 0.40 | 0.90 |
| September. | 2.00 | 1.39 | 0.61 | 0.70 | 0.39 | 0.31 | 1.47 | 0.98 | 0.49 | 0.80 | 1.80 |
| October... | 1.80 | 1.70 | 0.10 | 0.80 | 0.40 | 0.40 | 1.31 | 0.93 | 0.38 | 0.70 | 1.00 |
| November. | 1.50 | 1.01 | 0.49 | 0.30 | 0.01 | 0.29 | 0.87 | 0.55 | 0.32 | 0.70 | 1.20 |
| December. | 1.40 | 1.11 | 0.29 | 0.00 | -0.99 | 0.99 | 0.63 | 0.27 | 0.36 | 0.90 | 1.40 |
| 1890 — Annual Means ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1.11 | 0.63 | 0.48 | ..... | ..... |

PRIVATE DREDGING IN THE CHICAGO RIVER.

During most of the year 1889 all cutting from the bed of the river at work of this character was dumped under the direction of an Inspector from the Department of Public Works, the parties doing the work being required to refund to the city the expense of the inspection. This arrangement, however, did not work smoothly, and, in 1890, owing to this fact and the small appropriation, the City Engineer had to discontinue the practice. On the passage of the harbor ordinance on June 26th, 1890, the provision therein which requires a city inspector with every tug having loaded scows in tow was not enforced for lack of funds. The ordinance in question did not specify whether the parties doing the private dredging in the harbor or the city of Chicago should pay the expenses of the inspection. The city had no interest in the work beyond a police requirement that no dumping should take place except at the point in the lake already designated by ordinance of the Council. Inasmuch as some dumping has been done, secretly, during 1890, which injured the channel in some places, the city inspection of private dredging has been again applied, the parties

doing the work being required to take out permits from the Department of Public Works, and an appropriation has been asked for this class of duty. The ordinance requires the duty to be done, and the expenses of doing should be borne by either the city or the parties doing the dredging.

DOCKS.

The practice which prevailed in former years to some extent in constructing docks without proper observance of harbor area has resulted in many encroachments upon the water area, and at some points embarrassments of the free navigation of the river have arisen. In all cases where docks originally built in upon the water area had to be rebuilt, the owners were required to construct on the true harbor lines, and thus, at such points, restore the original harbor area. All dock construction now must be done under the permission of the Commissioner of Public Works, and unless the parties engaged in repairing, altering or constructing any dock can produce on demand of the Harbor Master or any of his assistants, a permit from the Commissioner of Public Works, the work is immediately stopped. Since the passage of the Harbor Ordinance ten such permits have been issued and in all cases the work was required to be done on lines observant of the rights of the harbor.

The following tables of mean temperature for every day of the year 1890, and of the amount of precipitation for same period, were kindly furnished by Lieut. Beall, the United States Signal Service officer at this district. The table of details of the commerce of the Chicago District has been furnished through the courtesy of John M. Clark, Collector of the Port.

STATEMENT SHOWING THE MEAN TEMPERATURE AT CHICAGO, ILL.,
FOR EACH DAY OF THE YEAR 1890.

| DATE. | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. |
|------------|----------|-----------|--------|--------|------|-------|-------|---------|------------|----------|-----------|-----------|
| 1..... | 44.0 | 38.0 | 7.0 | 36.0 | 41.0 | 58.0 | 76.0 | 70.0 | 66.0 | 58.0 | 42.0 | 30.0 |
| 2..... | 34.0 | 34.0 | 10.0 | 40.0 | 54.0 | 68.0 | 72.0 | 82.0 | 68.0 | 60.0 | 38.0 | 22.0 |
| 3..... | 30.0 | 40.0 | 26.0 | 50.0 | 56.0 | 72.0 | 72.0 | 83.0 | 76.0 | 62.0 | 32.0 | 22.0 |
| 4..... | 38.0 | 48.0 | 14.0 | 41.0 | 42.0 | 74.0 | 62.0 | 74.0 | 74.0 | 62.0 | 36.0 | 16.0 |
| 5..... | 48.0 | 32.0 | 12.0 | 43.0 | 40.0 | 76.0 | 65.0 | 66.0 | 66.0 | 58.0 | 50.0 | 27.0 |
| 6..... | 26.0 | 30.0 | 12.0 | 51.0 | 41.0 | 63.0 | 75.0 | 72.0 | 77.0 | 56.0 | 54.0 | 26.0 |
| 7..... | 24.0 | 32.0 | 21.0 | 42.0 | 41.0 | 57.0 | 81.0 | 76.0 | 71.0 | 56.0 | 44.0 | 24.0 |
| 8..... | 31.0 | 18.0 | 26.0 | 54.0 | 51.0 | 60.0 | 82.0 | 78.0 | 60.0 | 58.0 | 37.0 | 25.0 |
| 9..... | 36.0 | 24.0 | 33.0 | 40.0 | 52.0 | 62.0 | 62.0 | 68.0 | 64.0 | 64.0 | 46.0 | 26.0 |
| 10..... | 40.0 | 34.0 | 36.0 | 37.0 | 41.0 | 66.0 | 66.0 | 63.0 | 62.0 | 58.0 | 37.0 | 37.0 |
| 11..... | 50.0 | 40.0 | 43.0 | 54.0 | 44.0 | 62.0 | 72.0 | 66.0 | 64.0 | 54.0 | 40.0 | 36.0 |
| 12..... | 50.0 | 29.0 | 37.0 | 62.0 | 54.0 | 64.0 | 74.0 | 66.0 | 66.0 | 64.0 | 44.0 | 22.0 |
| 13..... | 18.0 | 36.0 | 38.0 | 42.0 | 44.0 | 63.0 | 76.0 | 69.0 | 49.0 | 62.0 | 43.0 | 23.0 |
| 14..... | 25.0 | 38.0 | 23.0 | 36.0 | 53.0 | 66.0 | 78.0 | 66.0 | 56.0 | 49.0 | 48.0 | 37.0 |
| 15..... | 30.0 | 40.0 | 13.0 | 38.0 | 48.0 | 68.0 | 74.0 | 66.0 | 62.0 | 54.0 | 47.0 | 39.0 |
| 16..... | 10.0 | 45.0 | 22.0 | 42.0 | 50.0 | 66.0 | 71.0 | 76.0 | 54.0 | 48.0 | 46.0 | 34.0 |
| 17..... | 22.0 | 48.0 | 36.0 | 44.0 | 44.0 | 72.0 | 76.0 | 63.0 | 58.0 | 50.0 | 47.0 | 34.0 |
| 18..... | 30.0 | 33.0 | 35.0 | 42.0 | 54.0 | 69.0 | 66.0 | 64.0 | 65.0 | 50.0 | 48.0 | 34.0 |
| 19..... | 38.0 | 32.0 | 32.0 | 39.0 | 52.0 | 68.0 | 67.0 | 65.0 | 54.0 | 44.0 | 43.0 | 39.0 |
| 20..... | 20.0 | 18.0 | 44.0 | 42.0 | 46.0 | 68.0 | 66.0 | 62.0 | 52.0 | 45.0 | 44.0 | 42.0 |
| 21..... | 8.0 | 13.0 | 47.0 | 52.0 | 57.0 | 69.0 | 68.0 | 66.0 | 59.0 | 50.0 | 50.0 | 40.0 |
| 22..... | 8.0 | 24.0 | 36.0 | 61.0 | 62.0 | 71.0 | 71.0 | 56.0 | 54.0 | 51.0 | 38.0 | 42.0 |
| 23..... | 22.0 | 31.0 | 33.0 | 61.0 | 67.0 | 79.0 | 72.0 | 59.0 | 56.0 | 52.0 | 40.0 | 27.0 |
| 24..... | 13.0 | 40.0 | 44.0 | 40.0 | 64.0 | 80.0 | 69.0 | 64.0 | 56.0 | 49.0 | 44.0 | 18.0 |
| 25..... | 32.0 | 36.0 | 42.0 | 40.0 | 64.0 | 80.0 | 62.0 | 68.0 | 54.0 | 48.0 | 38.0 | 23.0 |
| 26..... | 44.0 | 24.0 | 40.0 | 41.0 | 58.0 | 78.0 | 68.0 | 68.0 | 56.0 | 42.0 | 34.0 | 28.0 |
| 27..... | 36.0 | 34.0 | 34.0 | 41.0 | 60.0 | 79.0 | 73.0 | 64.0 | 50.0 | 40.0 | 35.0 | 24.0 |
| 28..... | 30.0 | 18.0 | 28.0 | 54.0 | 68.0 | 84.0 | 80.0 | 70.0 | 50.0 | 41.0 | 35.0 | 24.0 |
| 29..... | 40.0 | ..... | 28.0 | 44.0 | 74.0 | 82.0 | 80.0 | 60.0 | 56.0 | 38.0 | 40.0 | 34.0 |
| 30..... | 39.0 | ..... | 27.0 | 58.0 | 76.0 | 82.0 | 83.0 | 62.0 | 58.0 | 35.0 | 38.0 | 40.0 |
| 31..... | 42.0 | ..... | 33.0 | ..... | 56.0 | ..... | 76.0 | 62.0 | ..... | 34.0 | ..... | 44.0 |
| Sums..... | 968 | 909 | 912 | 1367 | 1654 | 2106 | 2235 | 2094 | 1813 | 1592 | 1258 | 944 |
| Means..... | 30.9 | 32.5 | 29.4 | 45.6 | 53.4 | 70.2 | 72.1 | 67.5 | 60.4 | 51.4 | 41.9 | 30.5 |

STATEMENT SHOWING THE PRECIPITATION AT CHICAGO, ILL.,
FOR EACH DAY OF THE YEAR 1890.

| DATE. | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. |
|-------------|----------|-----------|--------|--------|-------|-------|-------|---------|------------|----------|-----------|-----------|
| 1 | .48 | ..... | .01 | ..... | ..... | ..... | .48 | ..... | ..... | .05 | Trace | .04 |
| 2 | .08 | Trace | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Trace | .01 | .16 |
| 3 ..... | ..... | .02 | .01 | .65 | .18 | .89 | .29 | .05 | ..... | ..... | Trace | .12 |
| 4 | .02 | .46 | .05 | .11 | .02 | Trace | ..... | .01 | ..... | .05 | ..... | .10 |
| 5 | .30 | ..... | .08 | ..... | .11 | ..... | ..... | ..... | .09 | .01 | ..... | .26 |
| 6 | .37 | ..... | .33 | .06 | Trace | ..... | Trace | ..... | Trace | .80 | ..... | ..... |
| 7 ..... | ..... | .53 | ..... | .02 | .05 | ..... | ..... | ..... | .13 | .03 | .04 | Trace |
| 8 ..... | ..... | ..... | ..... | .49 | ..... | ..... | ..... | ..... | .85 | ..... | .26 | ..... |
| 9 | .01 | Trace | ... | .11 | .58 | .09 | ..... | ..... | ..... | ..... | .10 | ..... |
| 10 | .02 | ..... | .15 | .01 | 2.06 | .02 | ..... | ..... | ..... | ..... | .02 | ..... |
| 11 | .44 | ..... | .60 | ..... | ..... | 1.01 | ..... | ..... | ..... | .06 | ..... | ..... |
| 12 | .60 | ..... | .04 | Trace | .55 | Trace | .27 | ..... | ..... | .28 | ..... | ..... |
| 13 | .34 | ..... | ..... | .78 | .01 | .10 | ..... | Trace | Trace | 1.05 | ..... | ..... |
| 14 ..... | ..... | .48 | Trace | .12 | ..... | .52 | 1.31 | .01 | ..... | Trace | ..... | ..... |
| 15 | .03 | ..... | ..... | Trace | ..... | .03 | ..... | ..... | Trace | ..... | .31 | ..... |
| 16 | .15 | ..... | ..... | ..... | Trace | ..... | ..... | ..... | .25 | .35 | .01 | .07 |
| 17 ..... | ..... | Trace | Trace | ..... | Trace | ..... | ..... | .29 | ..... | ..... | .84 | .03 |
| 18 ..... | ..... | ..... | ..... | ..... | .16 | ..... | ..... | ..... | ..... | .06 | ..... | ..... |
| 19 | .09 | .05 | .14 | ..... | .02 | Trace | ..... | .06 | .02 | Trace | ..... | ..... |
| 20 | Trace | .03 | .01 | ..... | ..... | .28 | ..... | ..... | ..... | .12 | ..... | Trace |
| 21 ..... | ..... | ..... | .01 | ..... | .12 | .16 | ..... | 1.47 | ..... | ..... | ..... | ..... |
| 22 .. | ..... | .04 | ..... | ..... | .04 | .02 | ..... | .01 | ..... | ..... | ..... | ..... |
| 23 .. | .06 | .01 | Trace | .40 | .03 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 24 ..... | ..... | Trace | .10 | .02 | .98 | .01 | .22 | Trace | ..... | ..... | ..... | ..... |
| 25 ..... | ..... | .53 | .04 | ..... | .07 | ..... | Trace | .38 | .04 | .06 | ..... | ..... |
| 26 | Trace | .01 | ..... | .46 | .15 | .05 | ..... | .24 | .01 | 1.16 | ..... | Trace |
| 27 ..... | ..... | .02 | .07 | ..... | ..... | .06 | ..... | ..... | ..... | ..... | Trace | Trace |
| 28 ..... | ..... | .24 | .46 | ..... | ..... | ..... | ..... | ..... | ..... | .08 | ..... | ..... |
| 29 ..... | ..... | ..... | Trace | Trace | ..... | .01 | ..... | ..... | ..... | .04 | ..... | ..... |
| 30 ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | .06 | ..... | Trace | Trace | ..... |
| 31 ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sums.... | 2.98 | 2.42 | 2.10 | 3.23 | 5.13 | 3.25 | 2.57 | 2.58 | ..... | ..... | ..... | ..... |
| Means | .096 | .086 | .068 | .108 | .165 | .108 | .083 | ..... | ..... | ..... | ..... | ..... |

TRACE—Indicates precipitation too small to measure.

ARRIVALS OF VESSELS IN THE DISTRICT OF CHICAGO DURING 1890.

| ARRIVED AT | VESSELS IN THE COASTING TRADE. | | | | | | AMERICAN VESSELS IN THE FOREIGN TRADE. | | | | | | FOREIGN VESSELS IN THE FOREIGN TRADE. | | | | | | TOTAL ARRIVALS. | |
|-----------------|--------------------------------|-----------|-------|-----------|--------|-----------|---|-------|-------|--------|--------|--------|--|--------|-------|-------|--------|--------|--------------------|-----------|
| | STEAM. | | SAIL | | TOTAL. | | STEAM. | | SAIL | | TOTAL. | | STEAM. | | SAIL | | TOTAL. | | | |
| | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | | |
| | | | | | | | | | | | | | | | | | | | | |
| Chicago..... | 4,903 | 3,239,531 | 4,132 | 1,039,380 | 9,035 | 4,278,911 | 15 | 7,075 | 71 | 21,066 | 86 | 23,161 | 56 | 33,438 | 11 | 4,012 | 67 | 37,450 | 9,196 | 4,344,502 |
| South Chicago.. | 574 | 633,987 | 286 | 73,683 | 860 | 707,670 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 860 | 707,670 |
| Michigan City.. | 388 | 75,990 | 71 | 10,091 | 459 | 86,081 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 459 | 86,081 |
| TOTAL..... | 5,865 | 3,949,508 | 4,489 | 1,123,134 | 10,354 | 5,072,642 | 15 | 7,075 | 71 | 21,066 | 86 | 23,161 | 56 | 33,438 | 11 | 4,012 | 67 | 37,450 | 10,507 | 5,138,233 |

CLEARANCES OF VESSELS IN THE DISTRICT OF CHICAGO DURING 1890.

| CLEARED FROM | VESSELS IN THE COASTING TRADE. | | | | | | AMERICAN VESSELS IN THE FOREIGN TRADE. | | | | | | FOREIGN VESSELS IN THE FOREIGN TRADE. | | | | | | TOTAL CLEARANCES. | |
|-----------------|--------------------------------|-----------|-------|-----------|--------|-----------|---|--------|-------|--------|--------|--------|--|--------|-------|-------|--------|--------|----------------------|-----------|
| | STEAM. | | SAIL. | | TOTAL. | | STEAM. | | SAIL. | | TOTAL. | | STEAM. | | SAIL. | | TOTAL. | | | |
| | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | No. | Tons. | | |
| | | | | | | | | | | | | | | | | | | No. | Tons. | |
| Chicago | 4,893 | 3,282,942 | 4,079 | 1,019,433 | 8,972 | 4,302,435 | 44 | 24,415 | 201 | 65,354 | 245 | 89,769 | 56 | 33,438 | 11 | 4,012 | 67 | 37,450 | 9,284 | 4,429,654 |
| South Chicago.. | 528 | 566,094 | 273 | 62,161 | 801 | 628,225 | | | | | | | | | | | | | 801 | 628,225 |
| Michigan City.. | 391 | 76,716 | 71 | 10,020 | 462 | 86,736 | | | | | | | | | | | | | 462 | 86,736 |
| TOTAL..... | 5,812 | 3,925,722 | 4,423 | 1,097,674 | 10,236 | 5,023,396 | 44 | 24,415 | 201 | 65,354 | 245 | 89,769 | 56 | 33,438 | 11 | 4,012 | 67 | 37,450 | 10,547 | 5,150,615 |

Attention is invited to the Appendix, containing reports and statements in relation to the Chicago Harbor, to which recent developments and present projects attach more than ordinary interest.

Yours very respectfully,

RICARD O. S. BURKE,
Assistant Engineer, in charge of Harbor

EXHIBIT "T."

VESSEL DISPATCHER'S OFFICE.

CHICAGO, January 1, 1891.

A. W. COOKE,

City Engineer.

SIR:—I would herewith respectfully transmit my report, exhibiting the operation of the Vessel Dispatcher's office during the year 1890:

It is not for me to dwell at length upon the general usefulness of the River Telephone Service, for I trust it has been fully demonstrated to the general public by practical application during the past three (3) years. The aggregate percentage of time the various bridges were closed for public use compares favorably with that of last year, being ninety-two per cent., or only about two-thirteenths per cent. less. There are now moored in the port of Chicago, for winter quarters, two hundred and sixty-seven (267) vessels of all kinds, forty-three (43) steamers and thirty-nine (39) sailing vessels of which number comprise the grain fleet of the lower lakes and Georgian Bay, while one hundred and fifty-one (151) craft of all kinds constitute the lumber fleet. Besides the above enumeration there are thirty-four (34) craft engaged in miscellaneous trades not particularly defined.

Alluding to the total tonnage of the past year, a slight decrease of forty-six thousand eight hundred and ninety-three (46,893) tons will be noticed from that of the season of 1889. This decrease may be chiefly charged to the falling off of a number of smaller lake craft during the past season, while but a very few larger vessels were added in their stead.

The following comparative table will show the total arrivals and clearances, together with the total net tonnage, from the year 1883 to 1890 inclusive, and also the arrivals and clearances of the port of South Chicago for the season of 1890.

Very respectfully,

R. PRINDIVILLE,

Vessel Dispatcher.

CHICAGO.

| YEAR. | ARRIVALS. | | CLEARANCES. | | TOTAL. | |
|-----------|-----------|-----------|-------------|-----------|--------|-----------|
| | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| 1883..... | 11,308 | 3,555,586 | 11,271 | 3,743,574 | 22,474 | 7,299,160 |
| 1884..... | 10,513 | 3,481,957 | 10,640 | 3,489,666 | 21,153 | 6,971,623 |
| 1885..... | 9,846 | 3,347,647 | 9,910 | 3,364,169 | 19,756 | 6,711,816 |
| 1886..... | 10,180 | 3,546,309 | 10,267 | 3,594,549 | 20,447 | 7,140,858 |
| 1887..... | 10,828 | 3,868,465 | 10,920 | 3,989,615 | 21,748 | 7,858,080 |
| 1888..... | 10,158 | 3,990,921 | 10,308 | 4,134,064 | 20,466 | 8,124,985 |
| 1889..... | 9,552 | 4,417,415 | 9,462 | 4,403,634 | 19,014 | 8,821,049 |
| 1890..... | 9,188 | 4,344,502 | 9,284 | 4,429,654 | 18,472 | 8,774,156 |

SOUTH CHICAGO.

| YEAR. | ARRIVALS. | | CLEARANCES. | | TOTAL. | |
|-----------|-----------|----------|-------------|----------|--------|-----------|
| | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| 1890..... | 860 | 707,670 | 801 | 634,225 | 1,661 | 1,341,895 |

REPORT OF THE VESSEL DISPATCHER'S OFFICE,

FROM APRIL 15 TO NOVEMBER 30, 1880—BETWEEN THE HOURS OF 8:00 A. M. AND 9:00 P. M.

BRIDGES.

| | RUSH. | STATE. | DEAR-BORN. | CLARK. | WELLS. | LAKE. | RAN-DOLPH. | MADISON. | ADAMS. | JACKSON. |
|--|---------------------|---------------------|---------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Number of days in service | 227 | 229 | 229 | 229 | 228 | 229 | 228 | 228 | 227 | 229 |
| Total time open | Hrs. Min. 344 53 | Hrs. Min. 353 42 | Hrs. Min. 369 55 | Hrs. Min. 308 1 | Hrs. Min. 364 10 | Hrs. Min. 348 41 | Hrs. Min. 353 18 | Hrs. Min. 384 18 | Hrs. Min. 313 45 | Hrs. Min. 315 41 |
| Total number of vessels passed through | 12,500 | 11,723 | 11,479 | 11,447 | 11,635 | 9,116 | 9,041 | 9,079 | 8,851 | 8,895 |
| Total number of swings | 8,032 | 7,963 | 7,556 | 7,714 | 7,728 | 6,317 | 6,498 | 6,274 | 6,398 | 6,418 |
| Average number of vessels per day ... | 54.58 + | 51.18 + | 50.12 + | 49.99 + | 51.03 + | 39.80 + | 39.60 + | 39.81 + | 38.99 + | 38.58 + |
| Average number of swings per day ... | 35.88 + | 34.75 + | 32.99 + | 34.12 + | 33.74 + | 27.58 + | 28.55 - | 27.52 + | 28.18 + | 28.06 + |
| Average number of vessels per swing.. | 1.55 + | 1.47 + | 1.51 + | 1.46 + | 1.51 + | 1.44 + | 1.39 + | 1.54 + | 1.38 + | 1.38 + |
| Average time consumed per vessel ... | Min. Sec. 1 38 | Min. Sec. 1 48 | Min. Sec. 1 56 | Min. Sec. 1 37 | Min. Sec. 1 52 | Min. Sec. 2 17 | Min. Sec. 2 20 | Min. Sec. 2 12 | Min. Sec. 2 8 | Min. Sec. 2 8 |
| Average time open per swing | 2 34 | 2 39 | 2 56 | 2 22 | 2 42 | 3 18 | 3 15 | 3 11 | 2 56 | 2 57 |
| Average time open per hour | 3 48 | 3 46 | 4 20 | 3 22 | 4 6 | 3 50 | 3 52 | 3 39 | 3 27 | 3 26 |
| Average time open per day | 92 21 | 92 4 | 96 29 | 80 14 | 95 5 | 91 21 | 92 58 | 87 58 | 82 55 | 82 42 |

REPORT OF THE VESSEL DISPATCHER'S OFFICE—CONTINUED.

FROM APRIL 15 TO NOVEMBER 30, 1890—BETWEEN THE HOURS OF 8:00 A. M. AND 9:00 P. M.

BRIDGES.

| | VAN BUREN. | | HARRISON. | | POLK. | | TWELFTH. | | EIGHT-EENTH. | | KINZIE. | | INDIANA. | | ERIE. | | CHICAGO AVENUE. | |
|--|------------|------|-----------|------|-------|------|----------|------|--------------|------|---------|------|----------|------|-------|------|-----------------|------|
| | 229 | | 226 | | 229 | | 227 | | 229 | | 229 | | 229 | | 229 | | 229 | |
| | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. |
| Number of days in service | 402 | 8 | 410 | 38 | 398 | 51 | 352 | 50 | 404 | 23 | 517 | 56 | 226 | 13 | 211 | 44 | 235 | 47 |
| Total time open | 8,887 | | 8,604 | | 8,561 | | 8,456 | | 8,084 | | 12,376 | | 3,831 | | 3,686 | | 3,987 | |
| Total number of vessels passed through | 6,348 | | 5,817 | | 6,307 | | 6,364 | | 5,960 | | 7,563 | | 3,401 | | 3,280 | | 3,600 | |
| Average number of vessels per day | 38.80 | + | 37.69 | + | 37.39 | + | 37.25 | + | 28.02 | + | 33.46 | + | 14.12 | + | 14.10 | + | 15.87 | + |
| Average number of swings per day | 27.72 | + | 25.51 | + | 27.41 | + | 28.08 | + | 25.16 | + | 32.6 | + | 13.85 | + | 13.65 | + | 14.70 | + |
| Average number of vessels per swing | 1.40 | + | 1.48 | + | 1.36 | + | 1.33 | + | 1.35 | + | 1.64 | + | 1.13 | + | 1.13 | + | 1.11 | + |
| Average time consumed per vessel | Min. | Sec. | Min. | Sec. | Min. | Sec. | Min. | Sec. | Min. | Sec. | Min. | Sec. | Min. | Sec. | Min. | Sec. | Min. | Sec. |
| Average time open per swing | 2 | 29 | 2 | 57 | 2 | 47 | 2 | 30 | 3 | 00 | 2 | 29 | 3 | 3 | 3 | 3 | 3 | 6 |
| Average time open per hour | 3 | 48 | 4 | 13 | 3 | 47 | 3 | 19 | 4 | 14 | 5 | 00 | 3 | 50 | 3 | 59 | 3 | 55 |
| Average time open per day | 4 | 23 | 4 | 30 | 4 | 21 | 3 | 54 | 4 | 23 | 5 | 30 | 2 | 28 | 2 | 22 | 2 | 34 |
| Average time open per week | 105 | 2 | 108 | .. | 104 | 30 | 93 | 15 | 105 | 35 | 135 | 39 | 69 | 34 | 55 | 28 | 57 | 22 |

REPORT OF THE VESSEL DISPATCHER'S OFFICE,

FROM APRIL 15 TO NOVEMBER 30, 1880—BETWEEN THE HOURS OF 7:00 A. M. AND 7:00 A. M.

BRIDGES.

| | RUSH. | | STATE. | | DEAR-BORN. | | CLARK. | | WELLS. | | LAKE. | | RAN-DOLPH. | | MADISON. | | ADAMS. | | JACKSON. | |
|--|--------|------|--------|------|------------|------|--------|------|--------|------|--------|------|------------|------|----------|------|--------|------|----------|------|
| | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. | Hrs. | Min. |
| Number of days in service..... | 227 | | 229 | | 229 | | 229 | | 228 | | 229 | | 228 | | 228 | | 227 | | 229 | |
| Total time open..... | 552 | 47 | 526 | 46 | 530 | 00 | 452 | 51 | 476 | 4 | 468 | 54 | 464 | 15 | 449 | 45 | 430 | 55 | 415 | 37 |
| Total number of vessels passed through | 17,268 | | 16,097 | | 15,515 | | 15,621 | | 15,266 | | 11,885 | | 11,898 | | 11,817 | | 11,464 | | 11,426 | |
| Total number of swings..... | 11,861 | | 11,269 | | 10,908 | | 11,003 | | 10,356 | | 8,577 | | 8,738 | | 8,468 | | 8,394 | | 8,892 | |
| Average number of vessels per day.... | 76.7 | + | 74.47 | + | 72.13 | + | 72.90 | + | 66.90 | + | 51.80 | + | 52.11 | + | 51.8 | + | 50.50 | + | 49.80 | + |
| Average number of swings per day.... | 51.8 | + | 49.7 | + | 47.6 | + | 48.1 | + | 45.4 | + | 37.4 | + | 38.2 | + | 37.1 | + | 36.9 | + | 36.5 | + |
| Average number of vessels per swing.. | 1.42 | + | 1.42 | + | 1.42 | + | 1.42 | + | 1.46 | + | 1.39 | + | 1.37 | + | 1.39 | + | 1.36 | + | 1.36 | + |
| Average time consumed per vessel.... | 2 | 41 | 2 | 29 | 2 | 31 | 1 | 98 | 2 | 8 | 2 | 4 | 2 | 3 | 1 | 91 | 1 | 88 | 1 | 80 |
| Average time open per swing..... | 3 | 14 | 3 | 20 | 3 | 41 | 2 | 97 | 3 | 12 | 3 | 10 | 3 | 80 | 3 | 71 | 3 | 75 | 3 | 64 |
| Average time open per hour..... | 5 | 91 | 5 | 71 | 5 | 78 | 4 | 96 | 5 | 22 | 5 | 11 | 5 | 9 | 4 | 96 | 4 | 74 | 4 | 53 |
| Average time open per day. | 146 | 25 | 198 | 4 | 138 | 51 | 118 | 39 | 125 | 32 | 132 | 51 | 122 | 39 | 119 | 21 | 113 | 40 | 108 | 54 |

REPORT OF THE VESSEL DISPATCHER'S OFFICE—CONTINUED.

FROM APRIL 15 TO NOVEMBER 30, 1890—BETWEEN THE HOURS OF 7:00 A. M. AND 7:00 A. M.

BRIDGES.

| | VAN BUREN. | HARRISON | POLK. | TWELFTH. | EIGHT- EENTH. | KINZIE. | INDIANA. | ERIE. | CHICAGO AVENUE. |
|--|---------------|-----------|-----------|-----------|------------------|-----------|-----------|-----------|--------------------|
| | 229 | 228 | 239 | 227 | 229 | 229 | 229 | 229 | 229 |
| | Hrs. Min. | Hrs. Min. | Hrs. Min. | Hrs. Min. | Hrs. Min. | Hrs. Min. | Hrs. Min. | Hrs. Min. | Hrs. Min. |
| Number of days in service | 513 47 | 554 49 | 525 53 | 469 28 | 543 43 | 648 48 | 280 25 | 245 18 | 265 10 |
| Total time open | 11,465 | 11,198 | 11,482 | 11,016 | 10,401 | 13,930 | 4,600 | 4,568 | 4,731 |
| Total number of vessels passed through | 8,505 | 7,827 | 8,124 | 8,426 | 7,688 | 9,308 | 3,984 | 3,989 | 4,266 |
| Total number of swings | 50.6 + | 48.63 + | 50.13 + | 48.5 + | 4.4 + | 60.80 + | 20.8 + | 19.9 + | 20.60 + |
| Average number of vessels per day | 37.1 + | 34.3 + | 35.4 + | 36.10 + | 33.5 + | 40.60 + | 17.3 + | 17.4 + | 18.6 + |
| Average number of swings per day | 1.94 + | 1.42 + | 1.41 + | 1.30 + | 1.35 + | 1.49 + | 1.15 + | 1.14 + | 1.10 + |
| Average number of vessels per swing | Min. Sec. | Min. Sec. | Min. Sec. | Min. Sec. | Min. Sec. | Min. Sec. | Min. Sec. | Min. Sec. | Min. Sec. |
| Average time consumed per vessel | 2 43 | 2 43 | 2 29 | 2 6 | 2 30 | 2 33 | 1 22 | 1 7 | 1 15 |
| Average time open per swing | 4 91 | 4 91 | 4 57 | 4 24 | 5 22 | 4 65 | 5 91 | 5 34 | 5 60 |
| Average time open per hour | 6 8 | 6 8 | 5 74 | 4 98 | 5 92 | 6 10 | 3 6 | 2 67 | 2 99 |
| Average time open per day | 146 1 | 146 1 | 137 47 | 176 8 | 143 2 | 170 00 | 73 28 | 65 2 | 69 28 |

EXHIBIT "Q."

HARBOR MASTER'S REPORT.

CHICAGO, January 10, 1891.

A. W. COOKE,

City Engineer.

SIR :—I herewith submit the following report for the year 1890 :

Schooner "Coral," damaged by Madison street bridge. Damages \$375.00.

Steamer "Emily B. Maxwell," damaged by Twenty-second street bridge September 28th. Damages \$415.00.

Schooner "G. M. Filer," damaged by Eighteenth street bridge September 21st. Damages \$200.00.

Schooner "Guido," damaged by Adams street bridge August 25th. Damages \$460.00.

Steamer "John Otis," damaged by Twelfth street bridge September 27th. Damages \$659.36.

On October 1st we dredged up the sunken canal steamboat "Whale," loaded with screenings, at a cost of \$518.00. We recovered her boiler and machinery, which were sold for \$300.00.

Wrecking work, for the purpose of clearing the channel, was done by the city in eight days, at a total expense for diving and towing of \$150.00.

A great deal of wrecking work was done and paid for by private parties.

During the period of navigation either I or my assistant are on duty as late as 11 o'clock every night, and if anything serious occurs I am called out by telephone, thanks to Prof. Barrett, who supplied me with one at my house.

Respectfully,

JOHN MCCARTHY,

Harbor Master.

BRIDGE AND

A. W. COOKE,

*City Engineer*DEAR SIR:—I have the honor to
Report of the Bridge

During the year 1894
steel viaducts have been
bridge, to be constructed

The Howe truss is the
type of truss, and has a
design, upon which many
structures, thus changing
least possible delay. The
are very nearly completed

The following list shows
the various bridge and viaducts

NORTH WESTERN AVENUE

Howe truss, two hundred feet
One roadway, eighteen feet
clear, with iron and steel
abutments and timber approach
divided as follows:

| | |
|-------------------------|----|
| Sub-structure, Chicago | 10 |
| Super-structure, Binder | 20 |
| Total | 30 |

The cost is borne by the
by the former city of Lake

CANAL STREET SWING BRIDGE, OVER THE SOUTH BRANCH.

Same type as North Western avenue ; two hundred feet long on center line, with pile center pier and abutments and timber approaches. The cost of this structure, borne by the city, is divided as follows :

| | |
|---|--------------------|
| Sub-structure, Chicago Dredging and Dock Company..... | \$ 6,053 38 |
| Super-structure, A. Gottlieb & Co..... | 11,989 00 |
| Total..... | <u>\$18,042 38</u> |

This structure has been the cause of a great deal of annoyance both to the city and to the navigation interests, as, owing to the absolute necessity for a bridge at this point, the work has been pushed to the utmost, without waiting the end of the tedious condemnation proceedings for the land necessary to widen the river at this point (see Plate VI) and, as a result, only the north draw is at present open, causing occasional blockades at this point. All this annoyance, however, will be done away with shortly, as the proceedings of condemnation are being pushed to the utmost and the south draw will be dredged and opened at the earliest possible date.

NINETY-FIFTH STREET SWING BRIDGE, OVER THE CALUMET RIVER.

Duplicate of Canal street bridge, but having long pile approaches. Cost, as follows, is borne by the city :

| | |
|--|--------------------|
| Sub-structure, Kimball & Cobb Stone Company..... | \$12,085 00 |
| Super-structure, Chicago Forge and Bolt Company..... | 13,350 00 |
| Total..... | <u>\$25,435 00</u> |

This bridge, as originally designed, was one hundred and seventy feet long, with two draws of sixty-two feet each, but about this time the law passed by Congress, which provides for draws of a minimum width of eighty feet on navigable streams controlled by the United States government, was forced and the city was compelled to substitute a two hundred foot bridge for the original design. Owing to a bend in the river at this point a two hundred foot bridge only gives two draws of seventy-seven feet each, and this was accepted and construction ordered at once.

THIRTY-FIFTH STREET SWING BRIDGE.

This bridge is of the same type as the three preceding ones, and is one hundred and seventy feet long on centre line. It has pile centre pier and abutments, and timber approaches forty feet long.

EXHIBIT "R."

BRIDGE AND VIADUCT CONSTRUCTION DEPARTMENT.

CHICAGO, February 15, 1891.

A. W. COOKE,

City Engineer.

DEAR SIR:—I have the honor to submit herewith the Sixteenth Annual Report of the Bridge and Viaduct Construction Department.

BRIDGES AND VIADUCTS.

During the year contracts for four Howe truss swing bridges and two steel viaducts have been let, together with the contract for a draw or lift bridge, to be constructed under Captain Harmon's patents.

The Howe truss swing bridges are of the ordinary construction of that type of truss, and have combined iron and steel turn-tables of modern design, upon which may be placed, at any future time, iron or steel superstructures, thus changing the structure from second to first class with the least possible delay. All of the above-mentioned bridges and one viaduct are very nearly completed at the present writing.

The following list shows the condition of affairs at present obtaining at the various bridge and viaduct sites :

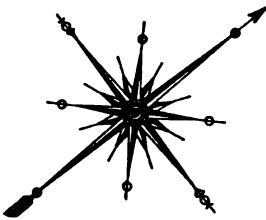
NORTH WESTERN AVENUE SWING BRIDGE, OVER THE NORTH BRANCH.

Howe truss, two hundred and sixty-six feet long on center (see Plate V. One roadway, eighteen feet clear between guards ; two sidewalks, five feet clear, with iron and steel turn-table, on pile center pier and having pile abutments and timber approaches (see inset). The cost of this structure is divided as follows :

| | |
|---|-------------|
| Sub-structure, Chicago Dredging and Dock Company..... | \$18,706 10 |
| Super-structure, Binder & Seifert..... | 14,000 00 |
| Total..... | \$32,706 10 |

The cost is borne by the city of Chicago, including appropriations made by the former city of Lake View and former town of Jefferson, respectively.

S O U T H



SCALE



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A. W. COO

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b

CANAL STREET SWING BRIDGE, OVER THE SOUTH BRANCH.

Same type as North Western avenue ; two hundred feet long on center line, with pile center pier and abutments and timber approaches. The cost of this structure, borne by the city, is divided as follows :

| | |
|---|--------------------|
| Sub-structure, Chicago Dredging and Dock Company..... | \$ 6,053 83 |
| Super-structure, A. Gottlieb & Co..... | 11,989 00 |
| Total | <u>\$18,042 83</u> |

This structure has been the cause of a great deal of annoyance both to the city and to the navigation interests, as, owing to the absolute necessity of a bridge at this point, the work has been pushed to the utmost, without awaiting the end of the tedious condemnation proceedings for the land necessary to widen the river at this point (see Plate VI) and, as a result, only the north draw is at present open, causing occasional blockades at this point. All this annoyance, however, will be done away with shortly, as the proceedings of condemnation are being pushed to the utmost and the south draw will be dredged and opened at the earliest possible date.

NINETY-FIFTH STREET SWING BRIDGE, OVER THE CALUMET RIVER.

Duplicate of Canal street bridge, but having long pile approaches. Cost, as follows, is borne by the city :

| | |
|--|--------------------|
| Sub-structure, Kimball & Cobb Stone Company..... | \$12,085 00 |
| Super-structure, Chicago Forge and Bolt Company..... | 13,350 00 |
| Total | <u>\$25,435 00</u> |

This bridge, as originally designed, was one hundred and seventy feet long, with two draws of sixty-two feet each, but about this time the law passed by Congress, which provides for draws of a minimum width of eighty feet on navigable streams controlled by the United States government, was enforced and the city was compelled to substitute a two hundred foot bridge for the original design. Owing to a bend in the river at this point a two hundred foot bridge only gives two draws of seventy-seven feet each, but this was accepted and construction ordered at once.

THIRTY-FIFTH STREET SWING BRIDGE.

This bridge is of the same type as the three preceding ones, and is one hundred and seventy feet long on centre line. It has pile centre pier and abutments, and timber approaches forty feet long.

The sub-structure is well under way, and the turn-table is also in the shop. The cost of this structure, borne by the city, is as follows :

| | |
|---|-------------|
| Sub-structure, Kimball & Cobb Stone Co..... | \$8,791.49 |
| | 500.00 |
| | <hr/> |
| | \$ 9,291.49 |
| Super-structure, Shailer & Schniglau.... | 10,545.00 |
| | <hr/> |
| Total..... | \$19,836.49 |

WEED STREET BRIDGE, NORTH BRANCH CANAL,

Of which are shown two views, on Plat VII, is an entirely new type of draw or lift bridge, built under Captain Harmon's patents, by Messrs. Shailer & Schniglau, at a cost to the city of \$8,296.00, complete.

This bridge gives an ample channel in the center of the river, and vessels lying at the docks close to the bridge offer no impediment to navigation, as far as passing through the draw is concerned. It will be observed that the raised floor of this bridge settles, at once, the bridge gate problem.

TAYLOR STREET BRIDGE, OVER THE SOUTH BRANCH.

An entire new substructure has been built for the bridge at this point, consisting of a cored oolithic stone centre pier, concrete abutments masked with the same kind of stone and the usual pile protection. The work has been done by the Chicago Dredging & Dock Company, at a cost of \$25,442.84, the same to be paid by the West Chicago Street Railroad Company.

The above amount does not cover the cost of removing the old Adams street bridge to this point, repairing and painting it and putting it in place on the new centre pier, two pieces of work which have been done, or will be done, respectively, by the city men under the Superintendent of Bridge and Viaduct Repairs.

WEST TAYLOR STREET VIADUCT, FROM THE SOUTH BRANCH OF THE CHICAGO RIVER TO THE WEST CURB LINE OF CANAL STREET.

The contract for the sub-structure has been awarded to James Kincade, the estimated amount of his contract being \$18,232.67, which amount will vary according to the depth to which the walls and piers have to be carried to secure a firm foundation.

The contract for the super-structure has been awarded to the Chicago Forge and Bolt Company, the amount being \$62,250.00, of which the Chicago, Burlington & Quincy Railroad and the Pittsburg, Ft. Wayne & Chicago Railroad pay \$18,875.00, and the West Chicago Street Railway Company \$43,350.00—the date of completion being set at July 15, 1891.

EAST TAYLOR STREET VIADUCT FROM THE SOUTH BRANCH TO FIFTH AVENUE,
WITH AN APPROACH OR APPROACHES ON FIFTH AVENUE.

This structure will be paid for by the Chicago & Northern Pacific Railroad Company, and while several plans, prepared by this bureau, the Chicago & Northern Pacific Railroad Company and the West Chicago Street Railroad Company, have been discussed, no definite conclusion has as yet been reached as regards the nature and extent of the approaches, which are the sole cause of the existing difference of opinion.

WASHINGTON STREET VIADUCT FROM THE WEST LINE OF MARKET STREET TO
THE EAST LINE OF CANAL STREET.

(See Plate IV.)

The sub-structure is entirely complete, and the super-structure is in course of erection.

The contractors are J. J. Duffy for the sub-structure and the King Bridge Company for the super-structure.

The cost would be \$28,252.00, divided as follows:

| | |
|-------------------------|--------------------|
| J. J. Duffy..... | \$ 9,567 00 |
| King Bridge Company.... | 18,685 00 |
| Total..... | <u>\$28,252 00</u> |

Of this amount the city pays \$20,237.63 and the Pittsburg, Ft. Wayne & Chicago Railroad Company \$6,014.37.

WASHINGTON STREET BRIDGE.

When the West Chicago Street Railroad Company remodeled the Washington street tunnel, a cored center pier and two concrete abutments masked with masonry, were built and prepared to receive the present Madison street bridge, which will be removed to this site as soon as the viaduct is completed, the work of removal to be done by the Department of Bridge and Viaduct Repairs, at the expense of the city.

MADISON STREET BRIDGE.

The super-structure of this bridge, the contract for which was let to Riter & Conly, of Pittsburg, Pa., under Mayor Roche, for the sum of \$52,500.00, has been ready for months, and is now piled up and shedded over in the yard of the contractors, awaiting such time as the sub-structure shall be ready to receive it.

In connection with the new bridge a new viaduct is contemplated, as the present structure has passed its days of usefulness and its present factor of safety is entirely inadequate to the loads which now come upon it.

OGDEN AVENUE VIADUCT.

The plans for this structure are well under way and the contract for the sub-structure has been awarded to James Kincade, whose contract amount according to estimate is \$84,499.30, the date of completion being set at September 3d, 1891. This will be undoubtedly the most notable viaduct in the city, being one hundred and twenty feet wide over all, with approaches one hundred and fifty feet wide. The super-structure has two sidewalks of ten feet each, from wheel guard to rail, two traffic ways twenty-six feet clear between guards and one boulevard way forty feet clear between guards.

The cost of the structure will be divided between the city, the West Chicago Park Commissioners, the Chicago & Northern Pacific Railroad, the Chicago & North-Western Railway, the Union Stock Yards & Transit Company, and the Pittsburg, St. Louis and Chicago Railroad.

PLANS AND ESTIMATES FOR PROPOSED STRUCTURES.

During the year plats and estimates have been prepared for viaducts, bridges and subways at the following points:

Viaduct, May and Kinzie streets.

Randolph street swing bridge.

New bridge at Kinzie street, in connection with a viaduct on Kinzie and Clinton streets.

Easterly extension of Eighteenth street viaduct.

Forty-third and Clark street viaduct.

Forty-third and Clark street subway.

Forty-third and Stewart avenue viaduct.

Viaduct, Lake and Rockwell streets.

Viaduct, Jefferson and Sixteenth streets.

Viaduct, Halsted between Thirty-ninth and Root streets.

Viaduct, Union and Sixteenth streets.

Reducing height of Ninety-second street swing bridge.

California avenue canal fixed bridge.

Madison street viaduct over the Ft. Wayne tracks.

Viaduct, West North avenue.

Viaduct, West Division street.

California avenue viaduct, between Fuller street and Chicago avenue.

Robey and Sixteenth street viaduct.

Ashland avenue viaduct at Sixteenth street.

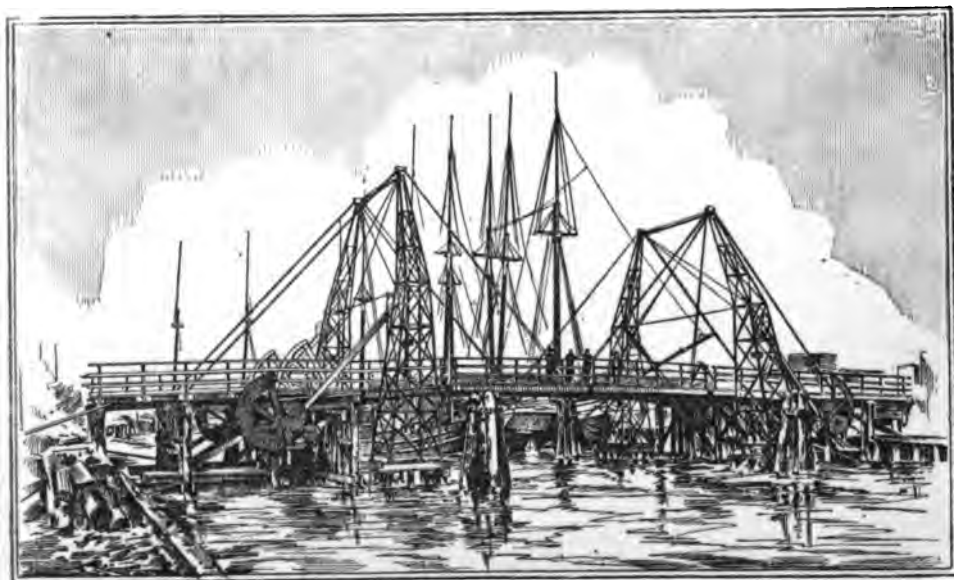
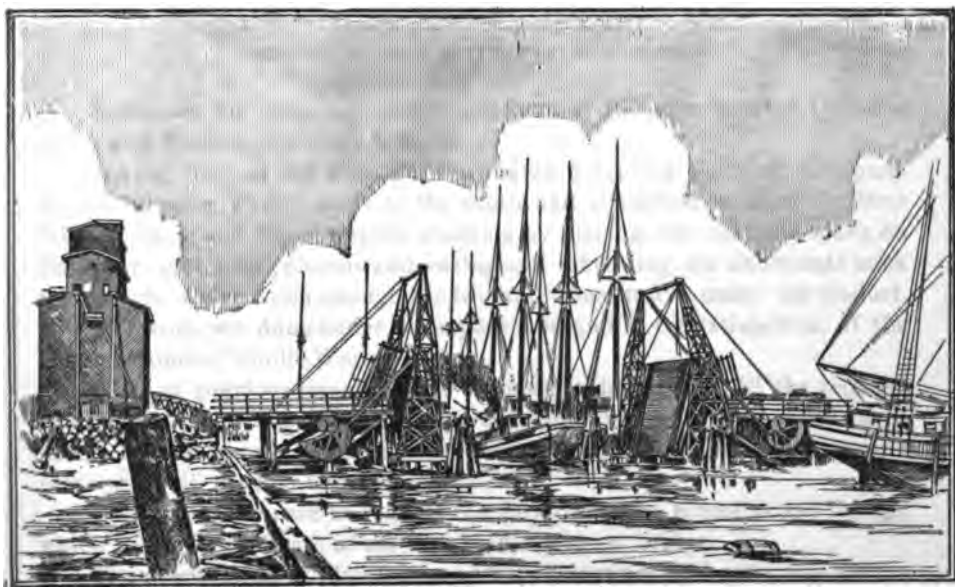
Ashland avenue subway at Sixteenth street.

Sixty-third and State street viaduct.

Sixty-third and State street subway.

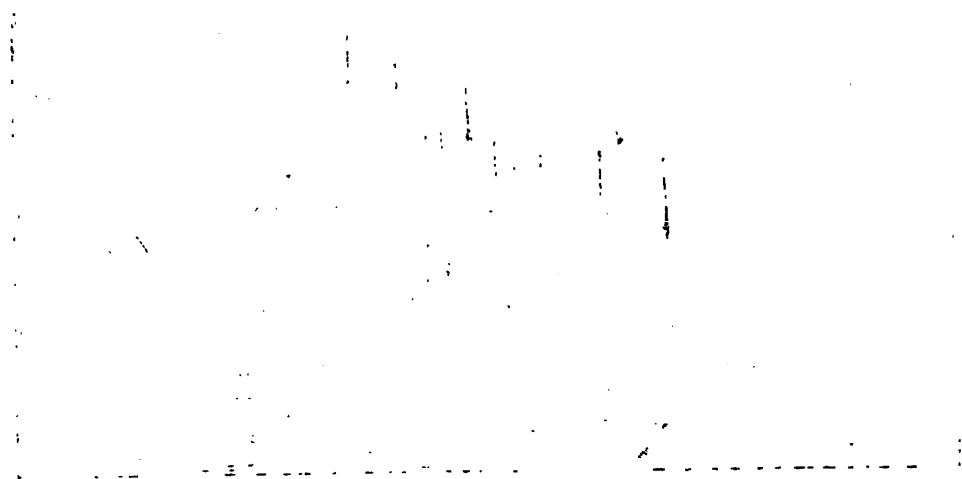
Belmont avenue fixed bridge.

PLATE VII.



THE HISTORY OF

THE CITY OF BOSTON



MISCELLANEOUS ESTIMATES AND WORK.

Estimates for covering certain portions of the open cuts of La Salle street and Washington street tunnels.

During the year the Chicago, Burlington & Quincy Railroad Company has added plate girder spans to the south and southwest ends of the Blue Island avenue and Throop street viaducts by placing the old truss spans on heavy wrought iron columns and razing and rebuilding the abutments back far enough to give room enough for two additional tracks under the viaduct.

The work was done under the supervision and to the satisfaction of the Commissioner of Public Works.

Plans of previous structures are on hand which exactly fill the requirements for a viaduct on West North avenue and the California avenue canal bridge, so that when construction is ordered at these points, sub-structure plans only will have to be prepared.

This is also the case as regards the proposed new Kinzie street bridge, which will be a duplicate of the new Madison street bridge.

The preparation of plats, plans and specifications and estimates for the above structures, together with sundry plats and profiles of viaducts and bridges for the Law Department and Appraisers has constituted the work of the drafting department.

Respectfully submitted,

A. G. RITER,

Principal Draughtsman.

EXHIBIT "S."

BRIDGE AND VIADUCT REPAIRS.

CHICAGO, January 1, 1891.

A. W. COOKE,

City Engineer.

* DEAR SIR :—I herewith present a report of the work done in this department during the year 1890:

Details of repairs will only be given on those bridges and viaducts that have been rebuilt or have undergone permanent and lasting repairs. With others this statement will only cover the amount expended for keeping them in order.

A—NORTH DIVISION—NORTH OF MADISON STREET.

On State street bridge it was discovered that the top course of dimension stone on the turn-table, directly under the track and gear, was spreading. Heavy bars or clamps let down in the stone, and secured by being leaded to the stone and clear around the turn-table, and likewise from the outside course to the large stone under the center step, stopped the tendency to spread.

At Dearborn street bridge fender clumps of forty-five-foot piles were driven on each corner of the center protection, and additional strengthening timbers were put on each of the protections.

Clark street bridge received additional fender clumps of piles, and repairs of center protection, and bracing and strengthening of the horizontal and upright shafting.

Wells street bridge received extensive repairs on center protection and north approach. About fifty forty-five-foot piles were driven at the bridge. The bridge was raised in August and a new set of turn-table wheels put in.

At Lake street bridge a large number of long fender piles were driven, to protect the bridge; and a new set of wheels and track are on hand, and operations are being made to put them in.

At Randolph street bridge the turn-table and center pier, which latter is of piling, were braced and strengthened from the inside, and an additional chain was attached to the outside.

At Madison street bridge the rotten top of the center pier, under the track and gear, was replaced by new timbers. The east abutment was found to be sliding towards the river, and settling down. A timber bent was placed under the super-structure, close to the abutment, and the dock was anchored back to the abutment.

Chicago avenue bridge was completely rebuilt, except as to the bar iron chords. Both approaches received new caps, joists and double plank throughout. The bottom chords and turn-table were cleaned and painted.

North Halsted street river bridge and both approaches were re-planked, chords re-covered and newly painted. Bridge circle beams were put on, and new iron track.

East Division street canal bridge and both of the approaches were rebuilt with new timbering and new piling in the abutments, and new anchoring put in to keep the latter from slipping into the river. The bridge was raised and the old pile center pier was rebuilt with new timber and new planking.

Clybourn place bridge center protection and both of the abutments were rebuilt completely, except as to the chords. About one hundred and twenty-five new piles were driven, and bridge house removed to a point where there is a better outlook up and down the river.

The house was put in good order and was given two coats of paint; so were the bridge chords and turn-table, after the iron had been well cleaned. This bridge, as well as East Division street and Chicago avenue bridges, are of the old combination pattern, with wooden braces. Division street bridge has been in service just twenty years. They are all in good condition now and will stand service many years to come.

Belmont avenue bridge was re-planked, and the west stone abutment, which, situated in a bend of the river, had been partly destroyed by spring floods, in consequence of the water getting behind the northwest wing, was protected by a three-inch oak sheet piling, projecting above high water level and reaching well into the high bank.

Jefferson avenue bridge, near the Bohemian cemetery, was re-planked.

At Chicago avenue and Halsted street viaduct the sidewalk reached clear over the iron chords in a manner that would admit of no circulation of air; thus the chords were kept constantly wet and rusting away rapidly. The sidewalk was cut off on both sides the entire length of the viaduct, and the chords and all of the iron under the roadways were cleaned and painted with two good coats of mineral paint. The chords were then covered again, so as to allow a free circulation of air under the covering, and can hereafter be reached without disturbing the sidewalks.

Sangamon street viaduct, the floor was taken up entirely, the iron structure was well cleaned and painted with two good coats of mineral paint. The floor was then rebuilt with new stringers and new planking. The railroad company paid for the latter work.

This department has done a large amount of work in fitting up little offices for the use of the Vessel Dispatcher's Department. Likewise it has furnished help to the harbor officials whenever required.

Annexed is a statement showing the amount expended on each bridge during the year :

BRIDGES.

| | |
|--|-------------|
| Rush street bridge | \$3,372 31 |
| State street bridge | 2,094 95 |
| Dearborn street bridge | 1,568 69 |
| Clark street bridge | 2,782 94 |
| Wells street bridge | 9,576 85 |
| Lake street bridge | 6,374 47 |
| Randolph street bridge | 3,491 36 |
| Madison street bridge | 2,104 83 |
| Kinzie street bridge | 1,421 19 |
| Indiana street bridge | 848 69 |
| Erie street bridge | 1,051 83 |
| Chicago avenue bridge | 7,270 86 |
| Halsted street bridge | 1,541 86 |
| Halsted and Canal streets bridge | 670 67 |
| East Division street bridge | 8,281 20 |
| West Division street bridge | 841 28 |
| North avenue bridge | 871 00 |
| Clybourn place bridge | 10,844 41 |
| Webster avenue bridge | 887 34 |
| Fullerton avenue bridge | 523 56 |
| Belmont avenue bridge | 475 37 |
| Jefferson avenue bridge | 285 86 |
| Total | \$49,181 52 |

Annexed is a statement showing the amount expended on each viaduct, and various other items of expense, during the year :

VIADUCTS.

| | |
|---|-------------|
| State street viaduct | \$ 224 08 |
| Wells street viaduct | 176 76 |
| Lake street viaduct | 612 24 |
| Randolph street viaduct | 239 35 |
| Madison street viaduct | 250 94 |
| Erie street viaduct | 858 28 |
| Chicago avenue and Halsted street viaduct | 5,084 34 |
| Milwaukee avenue viaduct | 425 73 |
| Halsted and Kinzie streets viaduct | 379 78 |
| Sangamon street viaduct | 3,021 18 |
| Harbor Department | 717 83 |
| Vessel Dispatcher's Office | 416 48 |
| Fullerton avenue pumping works | 28 85 |
| City Hall | 8 40 |
| Total | \$61,575 76 |

B—SOUTH DIVISION—SOUTH OF MADISON STREET.

Adams street bridge had two new locks put into bridge ends, and the ends of the chords cut off so as not to interfere with the abutments when the bridge swings. Sheet piling driven on east dock, and four loads of stone put in to keep the water from washing out behind the abutment; also general repairs.

Jackson street bridge. The roadway of this bridge has been re-paved with five-inch blocks. The center of this bridge being low, and the water not running off, the pavement there has been raised four inches and graded to drain outward. Also general repairs.

Van Buren street bridge had a new floor and new stringers put in where it was necessary. A new bridge bell was hung.

At Harrison street bridge the east abutment was strengthened with new timbers and four new wheels for turn-table fitted up and put in.

At Polk street bridge a new whale timber, 8 x 12 oak, was put on the full length of the west side of the protection. A new bridge bell was hung.

At Taylor street bridge there has been furnished two entirely new sidewalks and a new hand rail and fence. A new turn-table track was fitted up and put on; new chord pins were turned up and put in; top and bottom chords and strengthening plates were thoroughly scraped and painted with mineral paint.

At Twelfth street bridge a new floor of four-inch oak, new chord covering and guards were put on. Bottom chords thoroughly scraped and painted.

At Eighteenth street bridge a new floor of three-inch oak was put on; general repairs done.

At Twenty-second street bridge the protection was repaired, a new wheel for turn-table turned and put in, besides one new center-bearing plate.

At South Halsted street bridge the north approach was strengthened with new timbers and piles, and bridge was re-planked.

At Main street bridge a new floor was put in, the approach on the south end was rebuilt and necessary repairs were done on the protection.

At Thirty-ninth street and Ashland avenue bridge new sidewalks, one new pinion wheel turned and put in, besides general repairs.

Thirty-ninth and Laurel street bridge, new bridge house built and painted; bridge re-planked with two-inch oak; general repairs.

Ashland avenue bridge: Practically rebuilt, except as to south abutment; iron members thoroughly scraped and re-painted.

At Western avenue bridge over river sheet piling at the abutments had to be driven and braced with timber. Two approaches re-planked.

At Western avenue bridge over canal new bents put under both ends; new floor of two-inch oak and one new sidewalk built.

Kedzie avenue bridge over river: Sheet piling driven at the abutments; general repairs.

Kedzie avenue bridge over canal: New floor; sheet piling driven and braced with timber for one hundred and fifty feet; general repairs.

Deering street bridge: General repairs; plates put in center bearings.

Fuller street bridge was re-planked and one new sidewalk was put in; new braces put in; thoroughly scraped and painted with mineral paint; new turn-table put in; new protection built; west abutment rebuilt.

At Archer avenue bridge new floor was put in and stringers where necessary; new wheel plank; chords covered.

Ninety-second street bridge: Long anchor rods and timbers put in the abutments to brace the whole structure; piling and riprap work done under bents to support them and keep them from being washed away.

One Hundred and sixth street bridge: New floor in bridge house; new storm shed built on the bridge.

Chittenden bridge was re-planked and approaches repaired.

Riverdale bridge was re-planked and new sidewalk built on one side.

At Jackson street viaduct the roadway was repaired with five-inch paving blocks.

At Van Buren street viaduct the two roadways were re-planked.

At Clark and Twelfth streets viaduct one new six-foot sidewalk was built, running north from Twelfth street to the end of the approach.

Eighteenth street viaduct was re-planked, and stringers were put in where necessary.

At Center avenue viaduct there has been a new roadway built on the north end three hundred feet long and twenty feet wide.

Also one roadway on West Fifteenth street in the same vicinity, one hundred and fifty feet long and twenty feet wide.

Blue Island avenue and Throop street viaduct has been re-planked; new wheel plank, new stringers and new sidewalks; chords covered, thoroughly scraped and painted; new stone piers put under columns, also new channel fitted and put in; likewise furnished help to the Harbor Department whenever required.

Annexed is a statement showing the amount expended on each bridge during the year :

BRIDGES.

| | |
|--------------------------------------|----------|
| Hundred and sixth street bridge..... | \$ 4 75 |
| Adams street bridge..... | 3,296 69 |
| Jackson street bridge..... | 4,271 71 |
| Van Buren street bridge..... | 1,772 68 |
| Harrison street bridge..... | 1,772 43 |
| Polk street bridge..... | 632 41 |
| Taylor street bridge..... | 5,978 82 |
| Twelfth street bridge..... | 6,611 92 |
| Eighteenth street bridge..... | 1,960 55 |
| Twenty-second street bridge..... | 1,618 62 |

| | |
|---|--------------|
| South Halsted street bridge | \$ 532 18 |
| Thirty-fifth street bridge..... | 630 97 |
| Western avenue bridge over river. | 553 29 |
| Western avenue bridge over canal..... | 477 91 |
| Ashland avenue bridge | 6,552 93 |
| Ashland avenue bridge at Thirty-ninth street..... | 1,006 55 |
| Archer avenue bridge..... | 887 97 |
| Deering street bridge..... | 670 00 |
| Main street bridge | 1,241 38 |
| Fuller street bridge | 6,334 02 |
| Laurel street bridge | 877 70 |
| Ninety-second street bridge | 1,695 99 |
| Chittenden bridge..... | 1,621 40 |
| Riverdale bridge..... | 872 16 |
| General bridge..... | 4,649 31 |
| Bridgeport pumping works..... | 1,324 56 |
| Total | \$ 57,296 89 |

Annexed is a statement showing the amount expended on each viaduct during the year :

VIADUCTS.

| | |
|---|-------------|
| Jackson street viaduct..... | \$ 533 00 |
| Van Buren street viaduct..... | 200 00 |
| Twelfth and Clark streets viaduct..... | 1,786 05 |
| Eighteenth street viaduct..... | 1,552 90 |
| Canal street viaduct | 2,186 26 |
| Blue Island avenue viaduct..... | 8,356 04 |
| Throop street viaduct | 652 13 |
| Eighteenth street bridge protection | 715 20 |
| Alley at W. Fifteenth street. | 542 09 |
| Alley n. of Polk street | 79 75 |
| Alley off of Center avenue | 367 50 |
| Eighteenth street bridge shop | 327 35 |
| Ashland avenue and Mud lake..... | 477 30 |
| Engineering department | 55 78 |
| Total | \$70,125 24 |

Respectfully,

J. B. TOOBY,

Superintendent of Bridge and Viaduct Repairs.

REPORT
OF THE
Bureau of Water Rates
CITY OF CHICAGO

WATER OFFICE REPORT.

CHICAGO, January 31, 1891.

W. H. PURDY,

Commissioner of Public Works.

DEAR SIR:—In presenting my report for 1890, I respectfully refer you to the reports of the Assessor and Permit Clerk herewith submitted, and to the immense increase in the volume of business transacted in their respective bureaus. Perhaps in no department is the phenomenal growth of the city more apparent. The immense increase of the business of the Assessor and Permit Bureaus is not entirely due to annexation of new territory. The filling up of vacant lots within the old limits, with permanent buildings, and the rapid improvement of the streets are important factors. The percentage of expense of the Water Department is necessarily greater than in former years, owing to the long distances over which its employes are compelled to travel, and the consequent increased consumption of time which it involves. To reach the northern, southern or western limits of the city with heavy work-horses and loaded wagons, is a slow and expensive process, and in many instances it is the only way those points can be reached, with men and tools.

Transit on railroad and street cars is also expensive, and the daily disbursements for railroad fares is necessarily enormous. That some more expeditious and economical plan should be devised is apparent, and the facts are thus respectfully submitted that they may receive the consideration they seem to merit. Almost every street improvement, in the annexed territory, necessitates a force of men to hunt for and cut off old iron service-pipes, which, if left connected with the mains, would rust out and cause the tearing up of the newly-improved streets. In consequence of not being able to procure reliable plats showing the location of pipes, in many instances they can only be traced by persistent digging.

This work produces no revenue, but on the contrary, calls for large disbursements. It is reasonable to suppose, however, that the greater part of this work has been accomplished during the past year, and that the expense attending it will grow less with each succeeding season.

In closing this report, I desire to direct your attention to the fact that \$2,149,595.79 has been collected during the year without loss to the city or citizen, and establishes a high grade of honor upon the clerical force of the Water Department.

It affords me pleasure to record my appreciation of your many courtesies, as well as the kindness and good will manifested by all members of your official staff.

Very respectfully,

H. E. HAMILTON,

Superintendent of Water Department.

Dr.

| | |
|--|-----------------------|
| Delinquent rates, January 1, 1890..... | \$ 156,203 30 |
| Assessment, May 1, 1890..... | 1,670,385 85 |
| Assessor's increase checks..... | 155,284 38 |
| Assessor's miscellaneous..... | 17,572 69 |
| Meter rates... .. | 671,160 10 |
| Water permits..... | 40,099 45 |
| | <u>\$2,710,705 77</u> |

Cr.

| | |
|--|-----------------------|
| Amount collected January 1, 1890, to December 31, 1890..... | \$2,149,595 79 |
| Assessor's decrease checks for municipal and public buildings..... | 23,964 75 |
| Religious, educational and charitable institutions..... | 17,623 13 |
| Removals, changes to meter control and other causes..... | 108,941 94 |
| Order of City Council February 2d and April 21st, 1890. | 336 87 |
| Discounts..... | 184,447 63 |
| Balance uncollected December 31, 1890..... | 225,795 67 |
| | <u>\$2,710,705 77</u> |

Table showing the monthly collections from January 1, 1890, to December 31, 1890:

| 1890. | By Assessments. | Assessor's Miscellaneous. | Meters. | Water Permits. | TOTAL. |
|----------------|--------------------|------------------------------|--------------|-------------------|----------------|
| January..... | \$ 65,380 88 | \$ 47 00 | \$50,703 41 | \$1,616 15 | \$117,728 23 |
| February..... | 36,542 77 | 26 00 | 45,549 44 | 1,701 00 | 83,819 21 |
| March..... | 23,760 74 | 35 25 | 57,972 69 | 2,959 40 | 84,728 08 |
| April..... | 33,228 55 | 614 33 | 54,458 92 | 3,954 10 | 92,249 90 |
| May..... | 367,662 66 | 2,444 13 | 57,797 15 | 3,897 50 | 431,801 44 |
| June..... | 178,924 21 | 2,601 87 | 58,924 37 | 3,578 60 | 239,029 05 |
| July..... | 74,602 65 | 3,721 83 | 59,400 08 | 3,564 70 | 141,289 26 |
| August..... | 49,040 01 | 3,034 47 | 57,182 20 | 3,480 50 | 112,733 18 |
| September..... | 29,423 94 | 2,964 84 | 59,140 86 | 3,980 85 | 95,510 49 |
| October..... | 72,334 73 | 1,452 25 | 60,168 96 | 4,422 25 | 138,363 18 |
| November..... | 303,271 82 | 418 22 | 55,403 56 | 3,475 00 | 362,568 60 |
| December..... | 186,627 12 | 212 50 | 59,463 46 | 3,469 40 | 249,772 48 |
| TOTALS..... | \$1,420,763 55 | \$17,572 69 | \$671,160 10 | \$40,099 45 | \$2,149,595 79 |

The following table shows the work done by the leak and waste and shut-off forces:

SHUT OFF AND LEAK AND WASTE FORCES.

| MONTHS. | Bills Delivered. | Shut-off Notices Delivered. | Shut-off for Unpaid Tax. | Notices of Leak and Waste. | Shut-off for Leak and Waste. | Complaints Investigated. | Troughs Reported. | Hose Reported. | Water Turned On. |
|----------------|---------------------|-----------------------------------|--------------------------------|----------------------------------|------------------------------------|-----------------------------|----------------------|-------------------|---------------------|
| January | 6,556 | 6,592 | 122 | 31 | 39 | 76 | ..... | ..... | 111 |
| February | 3,400 | 6,141 | 303 | 20 | 48 | 105 | ..... | ..... | 89 |
| March..... | 1,449 | 1,365 | 241 | 17 | 45 | 103 | ..... | ..... | 146 |
| April | 11,497 | 1,620 | 274 | 29 | 84 | 107 | ..... | ..... | 237 |
| May | 10,582 | 109 | 74 | 14 | 58 | 77 | ..... | ..... | 151 |
| June | 6,696 | 721 | 40 | 6 | 88 | 217 | 2,263 | 289 | 52 |
| July | 6,047 | 6,456 | 162 | 57 | 74 | 94 | 1,994 | 181 | 95 |
| August. | 4,150 | 4,228 | 278 | 44 | 75 | 184 | 808 | 112 | 118 |
| September..... | 989 | 4,183 | 245 | 8 | 81 | 99 | 65 | 22 | 136 |
| October | 13,716 | 1,167 | 297 | 6 | 59 | 176 | 49 | 15 | 200 |
| November | 7,924 | 758 | 67 | 1 | 50 | 94 | 20 | 2 | 75 |
| December | 6,475 | 828 | 52 | 6 | 69 | 116 | 11 | 13 | 63 |
| TOTAL..... | 83,481 | 34,168 | 2,155 | 239 | 720 | 1,448 | 5,210 | 634 | 1,473 |

The following is a tabulated statement of the work of the Inspector's force for the year 1890:

BUILDINGS EXAMINED.

| 1890. | One Story. | Two Story. | Three Story. | Four Story. | Five Story. | Six Story. | Seven Story. | Eight Story. | Nine Story. | Ten Story. | Eleven Story. | Thirteen Story. | Sixteen Story. | Special Examinations Made. | Number. | |
|---------------|------------|------------|--------------|-------------|-------------|------------|--------------|--------------|-------------|------------|---------------|-----------------|----------------|----------------------------|---------|-------|
| | | | | | | | | | | | | | | | Feet. | Pipe. |
| January..... | 3,231 | 2,920 | 1,068 | 327 | 6 | 4 | 11 | 1 | | | | | | 968 | 37 | 364 |
| February..... | 1,866 | 3,104 | 558 | 236 | | | | | | | | | | 1,258 | 37 | 364 |
| March..... | 1,592 | 2,411 | 616 | 197 | 22 | 1 | | 2 | | | | | | 697 | 16 | 611 |
| April..... | 1,552 | 2,968 | 826 | 367 | 278 | 118 | 16 | 2 | | | | | 1 | 718 | 10 | 680 |
| May..... | 1,274 | 2,132 | 645 | 664 | 307 | 152 | 47 | 24 | 10 | 2 | 1 | 13 | | 600 | 29 | 706 |
| June..... | 883 | 2,327 | 1,669 | 935 | 123 | 60 | 23 | 9 | 3 | 7 | | 1 | | 535 | 34 | 921 |
| July..... | 1,063 | 2,909 | 1,769 | 593 | 66 | 28 | 13 | 6 | 2 | 2 | 1 | | | 666 | 48 | 166 |
| August..... | 2,963 | 3,688 | 1,135 | 353 | 11 | 2 | 4 | | | | | | | 491 | 55 | 856 |
| September.... | 3,157 | 3,470 | 725 | 123 | 42 | 2 | 1 | | | | | | | 425 | 49 | 512 |
| October..... | 2,386 | 2,559 | 1,349 | 422 | 142 | | | | | | | | | 454 | 41 | 322 |
| November..... | 1,629 | 2,582 | 927 | 215 | 15 | 1 | | | | | | | | 556 | 37 | 864 |
| December.... | 1,227 | 2,237 | 1,198 | 567 | 84 | 7 | 6 | 1 | | | | | | 583 | 64 | 627 |
| TOTAL..... | 22,833 | 33,307 | 12,475 | 4,999 | 1,091 | 375 | 120 | 45 | 15 | 11 | 2 | 14 | 1 | 7,901 | 462 | 815 |

WATER ASSESSOR'S REPORT.

CHICAGO, January 1, 1891.

H. E. HAMILTON,

Superintendent.

DEAR SIR :—I have the honor of submitting to you my Annual Report of work done in the Water Assessor's sub-department of the Water Office during the year ending December 31, 1890, showing—

1. The amount of assessments for water rates on the division books in Districts 1 to 5, inclusive, on January 1, 1890 ; with the increases and decreases up to and including April 30, 1890, being the close of the water revenue year.

2. The amount of miscellaneous assessments made during the same period, showing the amount collected, and the balance uncollected, April 30, 1890.

3. The amount as assessed and on books, in Districts 1 to 5, inclusive, on the first day of May, 1890, for the water revenue year ending April 30, 1891, showing the increases and decreases made from May 1 1890, to December 31, 1890, being the close of the municipal fiscal year.

4. The amount of miscellaneous assessments made during the last named period, and the amount remaining uncollected at the close of the municipal fiscal year.

5. The amount assessed and on books in Sixth District on the first day of May, 1890, for the year ending April 30, 1891, showing the increases and decreases from May 1, 1890, to December 31, 1890, as reported by M. Moriarity, collector of said district.

From January 1, 1890, to April 30, 1890, the collections in this district were made under the old "Town" system.

6. The amount assessed and on books in Seventh District on the first day of January, 1890, as reported by Walter S. Maher, collector, with increases and decreases from January 1, 1890, to April 30, 1890.

7. The amount assessed and on books, in said Seventh District, May 1, 1890, for the year ending April 30, 1891, with the increases and decreases from May 1, 1890, to December 31, 1890, being the close of the municipal year.

8. A detailed statement of streets, and number of water service pipes put in by contract during the year 1890, together with the aggregate cost of each street.

9. A detailed list of streets ordered by the City Council for improvement, with estimated number and cost of water service pipes, as returned by me to Special Assessment Department, during the year ending December 31, 1890.

FIRST TO FIFTH DISTRICTS, INCLUSIVE.

Amount of water assessments on division book, as per last report, January

1, 1890..... \$1,250,851 93

| Amount of increase checks from January 1, 1890, to April 30, 1890, numbers 4,428 to 4,688. | Amount of decrease checks from January 1, 1890, to April 30, 1890, numbers 3,461 to 3,741. |
|---|---|
| January, 1890.....\$ 1,795 39 | January, 1890.....\$ 5,173 86 |
| February, 1890.... 1,806 41 | February, 1890.... 5,775 20 |
| March, 1890..... 2,441 39 | March, 1890..... 3,004 91 |
| April, 1890..... 2,219 54 | April, 1890..... 1,970 80 |
| Total.....\$ 8,262 73 | Total.....\$15,924 77 |

Decrease.....\$15,924 77

Increase..... 8,262 73

Total decrease..... 7,662 04

Total amount, April 30, 1890.....\$1,243,189 89

MISCELLANEOUS ASSESSMENTS.

January 1, 1890, to April 30, 1890.

Uncollected January 1, 1890.....\$ 856 67

INCREASE.

| | |
|---|------------|
| January, 1890..... | \$ 56 00 |
| February, 1890..... | 139 50 |
| March, 1890..... | 322 83 |
| April, 1890..... | 728 24 |
| Total increase from January 1, 1890, to April 30, 1890..... | 1,246 57 |
| Total..... | \$2,103 24 |

DECREASE.

| | |
|---|------------|
| January, 1890..... | |
| February, 1890..... | |
| March, 1890..... | \$80 25 |
| April, 1890..... | 70 83 |
| Total decrease, January 1 to April 30, 1890..... | \$ 151 08 |
| Total collected, January 1 to April 30, 1890..... | 722 58 |
| Uncollected, April 30, 1890..... | 1,229 58 |
| Total..... | \$2,103 24 |

WATER OFFICE REPORT.

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Amount of assessments for water, from May 1, 1890, to April 30, 1891,
exclusive of meters. \$1,886,589 05

| Increase from May 1, 1890, to December 31, 1890. Checks numbers 2 to 2,072. | Decrease from May 1, 1890, to December 31, 1890. Checks numbers 1 to 1319. |
|---|--|
| May, 1890.\$ 32,927 72 | May, 1890.\$ 19,774 77 |
| June, 1890. 10,596 50 | June, 1890. 12,229 54 |
| July, 1890. 12,679 98 | July, 1890. 8,240 60 |
| August, 1890. 12,085 61 | August, 1890. 6,692 68 |
| September, 1890. 14,462 78 | September, 1890. 16,104 06 |
| October, 1890. 13,940 74 | October, 1890. 32,826 82 |
| November, 1890.. 3,892 28 | November, 1890.. 10,869 59 |
| December, 1890.. 2,748 24 | December, 1890.. 7,655 29 |
| Total.....\$108,333 80 | Total.....\$118,893 35 |

Decrease.....\$118,893 35
Increase 108,333 80
Total decrease. 10,559 55

Total assessment from May 1, 1890, to December 31, 1890.. \$1,876,029 50

MISCELLANEOUS ASSESSMENTS.

May 1, 1890, to December 31, 1890.

Uncollected May 1, 1890.....\$ 1,229 58

INCREASE.

May, 1890.....\$ 3,292 72
June, 1890.... 3,160 20
July, 1890..... 3,647 58
August, 1890..... 3,193 97
September, 1890..... 2,840 50
October, 1890. 1,092 25
November, 1890..... 180 88
December, 1890..... 170 50

Total increase from May 1, 1890, to December 31, 1890..... 17,578 60

Total.... \$18,808 18

DECREASE.

| | | |
|---|---------------|--------------------|
| May, 1890 | \$ 12 50 | |
| June, 1890 | 25 00 | |
| July, 1890 | 425 00 | |
| August, 1890 | 12 50 | |
| September, 1890 | 22 16 | |
| October, 1890 | 80 00 | |
| November, 1890 | 66 66 | |
| December, 1890 | <u>928 31</u> | |
| Total decrease, May 1 to December 31, 1890 | | \$ 1,572 13 |
| Total collections, May 1 to December 31, 1890 | | 16,850 11 |
| Balance uncollected, December 31, 1890 | | <u>385 94</u> |
| Total | | <u>\$18,808 18</u> |

Amount rebated by ordinance of November 21, 1884, and July 30, 1885, during the year ending December 31, 1890, in Districts 1 to 7 inclusive :

| | |
|--|--------------------|
| Religious, charitable and educational institutions | \$17,623 12 |
| Municipal and public schools | 28,943 25 |
| By special order of Council, February 2, 1890 | 28 00 |
| By special order of Council, April 21, 1890 | <u>308 87</u> |
| Total | <u>\$41,903 24</u> |

The above rebates are included in the general decreases embraced in the foregoing report.

SIXTH DISTRICT.

As reported by M. MORIARITY, Collector.

Amount collected under the old "Town" system from January 1, 1890, to April 30, 1890

\$ 9,188 06

Amount of assessments for water from May 1, 1890, to May 1, 1891

\$127,354 25

| Increase from May 1, 1890, to December 31, 1890. | Decrease from May 1, 1890, to December 31, 1890. |
|---|---|
| May, 1890 | May, 1890 |
| June, 1890 | June, 1890 |
| July, 1890 | July, 1890 |
| August, 1890 | August, 1890 |
| September, 1890 | September, 1890 |
| October, 1890 | October, 1890 |
| November, 1890 | November, 1890 |
| December, 1890 | December, 1890 |
| Total | Total |

Increase

Decrease

Total increase

Total assessment from May 1 to December 1, 1890

WATER OFFICE REPORT.

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SEVENTH DISTRICT.

As reported by WALTER S. MAYER, Collector.

Amount of water assessments on division books, January 1, 1890. \$11,546 95

| Increase checks from January 1 to April 30, 1890. | Decrease checks from January 1 to April 30, 1890. |
|--|--|
| January, 1890.....\$ 102 83 | January, 1890.....\$ 27 82 |
| February, 1890..... 308 45 | February, 1890..... 69 82 |
| March, 1890..... 295 63 | March, 1890..... 118 94 |
| April, 1890... .. 577 06 | April, 1890..... 2,121 30 |
| Total .....\$1,278 97 | Total .....\$2,337 38 |

| | | |
|--------------------------------|-------------|--------------------|
| Decrease | \$ 2,337 38 | |
| Increase. | 1,278 97 | |
| Total decrease..... | | 1,058 41 |
| Total amount April 30, 1890 .. | | <u>\$10,488 54</u> |

Amount of water assessments from May 1, 1890, to April 30, 1891..... \$119,620 70

| Increase from May 1, 1890, to December 31, 1890. | Decrease from May 1, 1890, to December 31, 1890. |
|---|---|
| May, 1890.....\$ 5,859 77 | May, 1890.....\$ 2,368 00 |
| June, 1890..... 2,046 30 | June, 1890..... 1,914 92 |
| July, 1890... .. 4,326 33 | July, 1890..... 881 82 |
| August, 1890..... 5,064 64 | August, 1890..... 917 12 |
| September, 1890.. 3,101 85 | September, 1890.. 1,277 31 |
| October, 1890.... 3,053 51 | October, 1890.... 921 25 |
| November, 1890... 1,027 37 | November, 1890.. 950 03 |
| December, 1890... 1,742 41 | December, 1890... 3,384 13 |
| Total .....\$26,222 18 | Total .....\$12,614 58 |

| | | |
|--|-------------|---------------------|
| Increase..... | \$26,222 18 | |
| Decrease | 12,614 58 | |
| Total increase..... | | 13,607 60 |
| Total assessment from May 1 to December 31, 1890.... | | <u>\$133,228 30</u> |

SUMMARY, EXCLUSIVE OF METERS.

| | |
|---|-----------------------|
| First to Fifth Districts, assessed from May 1 to December 31, 1890..... | \$1,376,029 50 |
| Sixth District, assessed from May 1 to December 31, 1890..... | 135,633 85 |
| Seventh District, assessed from May 1 to December 31, 1890..... | 133,228 30 |
| Total..... | <u>\$1,644,891 65</u> |

DEPARTMENT OF PUBLIC WORKS.

WATER SERVICE PIPES PUT IN BY CONTRACT, SHOWING THE NUMBER OF PIPES, TOTAL AMOUNT OF CONTRACT,
AND ASSESSOR'S COST ON EACH STREET, DURING THE YEAR ENDING DECEMBER 31, 1890.

| STREET. | FROM | TO | Number of Pipes. | Amount of Contract. | Assessor's Cost. |
|-----------------------|-------------------|-------------------------|---------------------|------------------------|---------------------|
| Ambrose | Wood. | Leavitt. | 22 | Postponed. | ..... |
| Albany avenue. | Lake. | Kinzle. | 22 | \$ 308 00 | \$ 38 00 |
| Argyle. | Evanston avenue. | Eastern terminus. | 11 | 201 55 | ..... |
| Ashland avenue. | Belmont. | Sulzer. | 304 | 4,572 16 | 456 00 |
| Asylum place. | Elston avenue. | Leavitt. | 39 | 652 86 | 58 50 |
| Armitage avenue. | Milwaukee avenue. | California avenue. | 65 | 1,039 35 | 97 50 |
| Albany avenue. | Colorado avenue. | Twelfth. | 44 | 696 08 | 66 00 |
| Auburn. | Thirty-first. | Douglas avenue. | 41 | 567 85 | 61 50 |
| Addison. | Clark. | Lake Michigan. | 21 | 179 16 | On account. |
| Ashland avenue. | Egan avenue. | Fifty-fifth. | 391 | 6,869 87 | 586 50 |
| Butler. | Twenty-fourth. | Thirty-first. | 51 | 863 40 | 76 50 |
| Belmont avenue. | Clark. | Lincoln avenue. | 109 | 1,624 10 | 163 50 |
| Basil avenue. | North avenue. | Bloomington road. | 18 | 291 42 | 27 00 |
| Bonfield. | Archer avenue. | Thirty-first. | 65 | 886 70 | 97 50 |
| Byron. | Sheffield avenue. | Halsed. | 58 | 1,326 46 | 87 00 |
| Currier. | Augusta. | Chapin. | 8 | 99 52 | ..... |
| Campbell avenue. | Polk. | Twelfth. | 88 | 521 36 | 57 00 |
| California avenue. | Twelfth. | Ogden avenue. | 136 | 1,818 32 | 204 00 |
| California avenue. | Ogden avenue. | Twenty-second. | 70 | 1,001 00 | 105 00 |
| California avenue. | Twenty-second. | Twenty-sixth. | 66 | 895 62 | 98 00 |
| California avenue. | Division. | North avenue. | 8 | 158 24 | 12 00 |
| Chatham court. | Hobbie. | Division. | 134 | 1,896 10 | 201 00 |
| Central Park avenue. | Ogden avenue. | Douglas Park boulevard. | 8 | 142 56 | 12 00 |
| Cleveland. | Wallace. | Winter. | 77 | 1,704 78 | 115 50 |
| Commercial avenue. | Eighty-seventh. | Ninety-second. | 50 | 713 50 | 75 00 |
| Charlton. | Ridge avenue. | Francis. | 124 | 2,006 32 | 186 00 |
| Clark. | Fullerton avenue. | Diversity. | 326 | 6,360 26 | 489 00 |
| Cottage Grove avenue. | Oakwood avenue. | Fifty-first. | 70 | 1,102 50 | 105 00 |
| Cortland. | Western avenue. | Kedzie avenue. | 59 | 927 48 | 88 50 |
| Commercial. | North avenue. | Armitage avenue. | 100 | 1,623 00 | 150 00 |
| California avenue. | Chicago avenue. | Division. | 31 | 462 21 | 46 50 |
| Central Park avenue. | Ogden avenue. | Twenty-second. | 30 | 444 00 | 45 00 |
| Cortland. | Leavitt. | Robey. | 164 | 2,182 18 | 231 00 |
| Dashiel. | Thirty-first. | Egan avenue. | 12 | 179 64 | 18 00 |
| Davis. | North avenue. | Wabansia. | 12 | | |

WATER OFFICE REPORT.

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| | | | | | |
|-----------------------|----------------------------|-------------------------------------|-----|-----------|----------|
| Dania avenue..... | North avenue..... | Bloomingdale road..... | 22 | 356 84 | 33 00 |
| Dudley..... | Chicago avenue..... | Augusta..... | 20 | 825 20 | 30 00 |
| Davis..... | Division..... | North avenue..... | 80 | 1,196 00 | 120 00 |
| Deming court..... | N. Clark..... | Lake View avenue..... | 41 | 590 81 | 81 50 |
| Ellis avenue..... | Douglas avenue..... | Egan avenue..... | 8 | 127 70 | 4 50 |
| Exchange avenue..... | Eighty-seventh..... | Ninety-second..... | 67 | 1,046 54 | 100 50 |
| Early avenue..... | Evanston avenue..... | Southport avenue..... | 48 | 692 30 | 64 50 |
| Edgar..... | North avenue..... | Clybourn place..... | 8 | 188 16 | 12 00 |
| Elaine place..... | Cornelia..... | Roscoe..... | 33 | 524 04 | 49 50 |
| Evans avenue..... | Forty-second..... | Forty-third..... | 4 | 55 20 | 6 00 |
| Evans avenue..... | Forty-third..... | Forty-fourth..... | 13 | 195 40 | 42 00 |
| Fillmore..... | Western avenue..... | Rockwell..... | 28 | 469 28 | 135 00 |
| Fifteenth..... | Western avenue..... | California avenue..... | 90 | 1,437 58 | 52 50 |
| Fairfield avenue..... | Twelfth..... | Harvard..... | 85 | 543 80 | 7 50 |
| Fairfield avenue..... | Lake..... | C. & N.-W. Ry..... | 5 | 84 21 | 19 50 |
| Flournoy..... | California avenue..... | Francisco..... | 13 | 192 85 | 132 00 |
| Fifty-first..... | State..... | Grand boulevard..... | 88 | 1,294 48 | 13 50 |
| Florence avenue..... | Wrightwood avenue..... | Diversy..... | 9 | 136 71 | 22 50 |
| N. Fifty-ninth..... | Sheffield avenue..... | Evanston avenue..... | 15 | 289 10 | 43 50 |
| Fletcher..... | Evanston avenue..... | Halsted..... | 29 | 419 34 | 37 50 |
| Fifty-fourth..... | Lake avenue..... | Drexel avenue..... | 25 | 409 00 | 84 50 |
| Fairfield avenue..... | North avenue..... | Cortland..... | 23 | 297 75 | 12 00 |
| Forty-second..... | Cottage Grove avenue..... | Vincennes avenue..... | 8 | 98 84 | 183 50 |
| Flournoy..... | Leavitt..... | Oakley avenue..... | 189 | 2,952 18 | 130 50 |
| Forty-third..... | State..... | I. C. R. R..... | 87 | 1,506 84 | 16 50 |
| Fulton..... | Kedzie avenue..... | Homan avenue..... | 11 | 161 44 | 9 00 |
| Farrell..... | Archer avenue..... | Hickory..... | 6 | 93 72 | 55 50 |
| Francisco..... | Monroe..... | Van Buren..... | 37 | 703 67 | 6 00 |
| Fortieth..... | Langley avenue..... | Vincennes avenue..... | 4 | 65 48 | 57 00 |
| Grove court..... | Larabee..... | Orchard..... | 38 | 626 24 | 183 00 |
| Gross avenue..... | North avenue..... | Cortland..... | 123 | 1,778 76 | 112 50 |
| Grace..... | N. Clark..... | 120 feet west of Lake Michigan..... | 87 | 1,613 76 | 12 00 |
| Halsted..... | South branch of river..... | Egan avenue..... | 8 | 116 72 | 3 00 |
| Hope..... | Twenty-second..... | Blue Island avenue..... | 2 | 36 50 | 98 00 |
| Ilumboldt..... | Blue Island avenue..... | Morgan avenue..... | 62 | 827 08 | 106 00 |
| Heine..... | North avenue..... | Armitage avenue..... | 70 | 1,019 20 | 54 00 |
| Hoyne avenue..... | North avenue..... | Armitage avenue..... | 36 | 549 36 | 97 50 |
| Hervey..... | Wood..... | Asylum place..... | 25 | 892 75 | 48 50 |
| Hickory..... | Hervey..... | Robey..... | 29 | 394 82 | 1,189 50 |
| Halsted..... | Main..... | Lock..... | 783 | 13,917 15 | 33 00 |
| Hanover..... | Egan avenue..... | Sixty-ninth..... | 22 | 302 50 | |
| | Twenty-ninth..... | Thirty-third..... | | | |

WATER SERVICE PIPES PUT IN BY CONTRACT, SHOWING THE NUMBER OF PIPES, TOTAL AMOUNT OF CONTRACT, AND ASSESSOR'S COST ON EACH STREET, DURING THE YEAR ENDING DECEMBER 31, 1890—CONTINUED.

| STREET. | FROM | TO | Number of Pipes. | Amount of Contract. | Assessor's Costs. |
|-------------------|-------------------|--|------------------|---------------------|-------------------|
| Jane | Robey | Hoyle avenue | 16 | \$ 245 60 | \$ 24 00 |
| Johnston | California avenue | Humboldt Park boulevard | 67 | 970 16 | 100 50 |
| Kedzie avenue | Van Buren | Twelfth | 76 | 1,285 76 | 114 00 |
| Keeley | Archer avenue | Thirty-first | 25 | 882 50 | 37 50 |
| Lawndale avenue | Twenty-sixth | Thirty-first | 176 | 2,518 32 | 262 00 |
| Lexington | Rockwell | California avenue | 68 | 1,019 65 | 102 00 |
| Lafin | Fourteenth | Twenty-second | 7 | 99 85 | 10 50 |
| Lock | Archer avenue | Fuller | 8 | 123 62 | 12 00 |
| Lincoln | Twelfth | Blue Island avenue | 8 | Postponed. | ..... |
| Leavitt | Thirteenth | Blue Island avenue | 43 | 669 00 | 64 50 |
| Lewis avenue | Clybourn avenue | Belden avenue | 41 | 637 14 | 61 50 |
| Lake | Homan avenue | Crawford avenue | 69 | 1,047 42 | 103 50 |
| Leavitt | North avenue | Wabansia avenue | 18 | 307 08 | 27 00 |
| Langley avenue | Forty-second | Forty-fourth | 43 | 573 20 | 64 50 |
| Lincoln | Belmont | Addison | 64 | 1,153 00 | 44 80 |
| Lake avenue | Fifty-first | Fifty-seventh | 92 | 1,773 60 | 138 00 |
| Lincoln | Polk | Taylor | 45 | 665 55 | 67 50 |
| Mather | Canal | Clinton | 8 | 143 24 | 12 00 |
| Maplewood avenue | Division | North avenue | 98 | 1,534 68 | 147 00 |
| Mozart | North avenue | Armitage avenue | 61 | 905 24 | 91 50 |
| Napoleon place | Wentworth avenue | Stewart avenue | 9 | 140 05 | 13 50 |
| Napoleon place | Stewart avenue | Wallace | 4 | 61 04 | 6 00 |
| Noble | Clark | Sheffield avenue | 19 | 270 37 | 28 50 |
| Nellie avenue | Evanston avenue | E. line of B & T, Hardley's Sub. in Pine Grove | 57 | 773 02 | 85 50 |
| Norwood avenue | Kedzie avenue | Homan avenue, on account | 47 | 768 10 | 70 50 |
| Oshorn | Indiana | Ohio | 5 | 70 85 | 7 50 |
| Oakley avenue | North avenue | Wabansia avenue | 9 | 128 08 | 13 50 |
| Oakley avenue | Division | North avenue | 45 | 643 50 | 67 50 |
| Ontario avenue | Eighty-ninth | South Chicago avenue | 73 | 1,460 00 | ..... |
| Oakley avenue | Milwaukee avenue | Hamburg | 87 | 548 34 | 55 50 |
| Powell avenue | Milwaukee avenue | Fullerton avenue | 25 | 441 00 | 37 50 |
| Potomac avenue | Western avenue | California avenue | 59 | 895 03 | 88 50 |
| Paulina | Archer avenue | Thirty-eighth | 61 | 908 46 | 91 50 |
| Pine Grove avenue | Grace | Cornelia | 90 | 1,886 00 | 185 00 |
| Rockwell | Twelfth | Twenty-second | No main. | Postponed. | ..... |

| | | | | | |
|-------------------------|--------------------------|-----------------------------|-----|----------|--------|
| Root..... | State..... | Halsted..... | 46 | 618 18 | 69 00 |
| Racine avenue..... | Lincoln avenue..... | Addison..... | 94 | 1,291 56 | 141 00 |
| Roby..... | Belmont avenue..... | Roscoe..... | 28 | 407 98 | 42 00 |
| Roscoe..... | Roby..... | Western avenue..... | 153 | 2,947 02 | 299 50 |
| Rice..... | Chicago avenue..... | Leavitt..... | 2 | 25 82 | 3 00 |
| Richmond..... | Chicago avenue..... | Division..... | 109 | 1,761 44 | 168 50 |
| Roscoe..... | Evanston avenue..... | Halsted..... | 81 | 420 06 | 46 50 |
| Rockwell..... | North avenue..... | Armitage avenue..... | 21 | 277 62 | 31 50 |
| Rockwell..... | Division..... | North avenue..... | 95 | 1,545 40 | 142 50 |
| Sixtieth..... | Canal..... | Halsted..... | 13 | 288 24 | 17 00 |
| Seventeenth..... | Ashland avenue..... | Lincoln..... | 4 | 68 20 | 6 00 |
| Sixteenth..... | Ashland avenue..... | Wood..... | 8 | 141 84 | 12 00 |
| St. Louis avenue..... | Lake..... | Chicago avenue..... | 185 | 2,042 94 | 202 50 |
| Shields avenue..... | Thirty first..... | Thirty third..... | 76 | 1,047 44 | 114 00 |
| Sixteenth..... | Western avenue..... | California avenue..... | 100 | 1,505 90 | 150 00 |
| Shields avenue..... | Twenty-sixth..... | Thirty-first..... | 15 | 198 90 | 32 50 |
| Seward avenue..... | Canalport avenue..... | Lumber..... | 17 | 292 84 | 25 50 |
| Sawyer avenue..... | Ogden avenue..... | C. B. & Q. R. R..... | 48 | 689 02 | 72 00 |
| Spring..... | State..... | Wentworth avenue..... | 20 | 264 00 | 30 00 |
| Sheffield avenue..... | N. Clark..... | Addison..... | 68 | 909 16 | 102 00 |
| Southport avenue..... | Fullerton avenue..... | Belmont..... | 76 | 1,009 50 | 112 50 |
| Sulzer..... | Sheffield avenue..... | Halsted..... | 58 | 751 00 | 87 00 |
| Seymour..... | North avenue..... | Armitage..... | 14 | 248 22 | 31 00 |
| Seminary avenue..... | Fullerton avenue..... | Diversy..... | 33 | 324 07 | 34 50 |
| Sixteenth..... | Halsted..... | Throop..... | 7 | 124 18 | 10 50 |
| Sheffield avenue..... | North avenue..... | Clybourn avenue..... | 22 | 440 00 | 24 64 |
| Sixty-third..... | Stony Island avenue..... | Cottage Grove avenue..... | 177 | 3,095 78 | 265 50 |
| Twenty-ninth..... | Hanover..... | Halsted..... | 13 | 174 74 | 19 50 |
| Troy..... | Fillmore..... | Twelfth..... | 26 | 369 46 | 39 00 |
| Twenty-second..... | Western avenue..... | Trumble avenue..... | 375 | 4,898 75 | 562 50 |
| Twelfth..... | Kedzie avenue..... | Douglas Park Boulevard..... | 246 | 4,365 66 | 369 00 |
| Twenty-third place..... | Wentworth avenue..... | Archer avenue..... | 43 | 600 02 | 64 50 |
| Twenty-eighth..... | Stewart avenue..... | Wallace..... | 7 | 125 84 | 10 50 |
| Twenty-seventh..... | Hanover..... | Wallace..... | 11 | 150 26 | 16 50 |
| Thirty-fourth..... | Halsted..... | Laurel..... | 7 | 96 50 | 10 50 |
| Thirty-sixth..... | State..... | Indiana avenue..... | 10 | 130 50 | 15 00 |
| Twenty-second..... | Trumble avenue..... | Lawndale avenue..... | 60 | 985 20 | 90 00 |
| Thomas..... | Seymour..... | California avenue..... | 85 | 1,292 00 | 127 50 |
| Vernon avenue..... | Thirty-seventh..... | Egan avenue..... | 65 | 850 89 | 97 50 |
| Van Horn..... | Roby..... | Western avenue..... | 30 | 513 00 | 45 00 |
| Vincennes avenue..... | Forty-seventh..... | Fifty-first..... | 81 | 1,266 84 | 121 50 |
| Wood..... | Sixteenth..... | Blue Island avenue..... | 5 | 91 26 | 7 50 |

DEPARTMENT OF PUBLIC WORKS.

WATER SERVICE PIPES PUT IN BY CONTRACT, SHOWING THE NUMBER OF PIPES, TOTAL AMOUNT OF CONTRACT,
AND ASSESSOR'S COST ON EACH STREET, DURING THE YEAR ENDING DECEMBER 31, 1890. CONTINUED.

| STREET | FROM | TO | Number of Pipe | Amount of Contract | Assessor's Cost |
|-------------------|------------------|-----------------|-------------------|-----------------------|--------------------|
| Western avenue | Indiana | Chicago | 38 | \$ 1,045 01 | \$ 57 00 |
| Wellington avenue | Shedfield avenue | Halsed | 64 | 752 20 | 81 00 |
| Washington avenue | North avenue | Ambridge avenue | 58 | 802 14 | 87 00 |
| Washtenaw avenue | Division | North avenue | 38 | 538 08 | 57 00 |
| Whipple | Colonado avenue | Van Buren | 20 | 310 00 | 30 00 |
| Wood | Archer avenue | Levan avenue | 100 | 1,500 36 | 163 50 |
| Willmot avenue | Leavitt | Ambridge | 45 | 611 40 | 67 50 |
| Wellington avenue | N. Clark | Halsed | ... | ... | ... |
| Total | | | 806 38 | \$150,345 10 | \$13,910 01 |

List of streets ordered by the City Council for improvement, with estimated number and cost of water service pipes, as returned to Superintendent of Special Assessments from January 1 to December 31, 1890.

| STREET. | FROM | TO | Estimated Number of Pipes. | Estimated Cost. |
|---------------------------|------------------------------|---------------------------|----------------------------------|--------------------|
| Addison | North Clark | Lake Michigan | 166 | \$ 3,852 00 |
| Aberdeen | Evanston avenue | Sheffield avenue | 16 | Not assessed |
| Ashland avenue | Egan avenue | Fifty-fifth | 745 | 20,115 00 |
| Armitage | Kedzie avenue | C. M. & St. P. Ry. | 308 | 5,852 00 |
| Adams | Kedzie avenue | Central Park avenue | 162 | 3,564 00 |
| Aldine | Evanston avenue | Lake Michigan | 75 | 1,425 00 |
| Ashland avenue | Fifty-fifth | Fifty-ninth | 167 | 3,841 00 |
| Arthington | Loomis | Sibley | All in. | Not assessed |
| Albany avenue | Ogden avenue | Douglas park blvd. | 41 | 861 00 |
| Ashland avenue | Robey | Olive | 6 | ..... |
| Byron | Sheffield | Halsted | 85 | 1,955 00 |
| Bonney avenue | Ogden | Twenty-sixth | 153 | 3,060 00 |
| Bonfield | Archer avenue | Hickory | 19 | 342 00 |
| Belden Avenue | Perry | Southport avenue | 1 | Not assessed |
| Baltimore avenue | Commercial avenue | Eighty-third | 84 | 1,848 00 |
| Burton place | Dearborn | N. State | 3 | Not assessed |
| Block | North avenue | Eugenie | 3 | Not assessed |
| Burlington | Sixteenth | Eighteenth | 3 | Not assessed |
| Bond avenue | Seventy-ninth | Eightieth | 42 | 882 00 |
| Commercial avenue | Chicago Avenue | Ninety-sixth | 96 | 2,068 00 |
| Commercial avenue | Ninety-sixth | Hundredth | 191 | 4,966 00 |
| N. Clark | Fullerton | Diversy | 166 | 3,320 00 |
| Cornelia | Halsted | Lake Michigan | 95 | 1,900 00 |
| Central Park avenue | Ogden | Twenty-second | 86 | 720 00 |
| Canal | Twelfth | Polk | 9 | 270 00 |
| Cortland | Leavitt | Robey | 31 | 589 00 |
| Clinton | Randolph | Fulton | 9 | Not assessed |
| Colorado avenue | Jackson | Central Park avenue | 88 | 1,760 00 |
| Clay | Halsted | Sheffield avenue | 4 | Not assessed |
| N. Clark | Centre | Fullerton avenue | 21 | 630 00 |
| Concord place | Clybourn avenue | Sheffield avenue | 13 | 260 00 |
| Cooper | Fullerton avenue | Clybourn avenue | 3 | Not assessed |
| Carroll avenue | Halsted | May | 25 | 550 00 |
| Clarinda | Ashland avenue | Wood | 16 | Not assessed |
| Congress | Rockwell | Albany avenue | 88 | 1,936 00 |
| Coulter | Robey | Hoyne avenue | 30 | 570 00 |
| Clayton | Morgan | Fisk | 2 | Not assessed |
| Chestnut | Wallace | Halsted | 80 | 1,520 00 |
| Congress | Rockwell | Albany avenue | 88 | 1,936 00 |
| Champlain avenue | Sixtieth | Sixty-first | 36 | 720 00 |
| Calumet avenue | Forty second | Forty-third | 40 | 800 00 |
| Central Park avenue | Twenty-second | Twenty-sixth | 130 | 2,600 00 |
| California avenue | North avenue | Milwaukee avenue | All in. | Not assessed |
| Chestnut place | Delaware place | Walton place | 12 | 156 00 |
| Desplaines | Harrison | Adams | 13 | Not assessed |
| Deming court | Clark | Lake View avenue | 61 | 1,159 00 |
| Dudley | Hervey | Asylum place | 13 | 260 00 |
| Dickey | Sixty ninth | Seventy-second | 144 | 2,592 00 |
| Drexel avenue | Fifty fifth | Fifty-ninth | 200 | 3,800 00 |
| Drake avenue | Central Park boulevard | Ohio | 27 | 540 00 |

STREETS ORDERED FOR IMPROVEMENT—CONTINUED.

| STREET. | FROM | TO | Estimated Number of Pipes. | Estimated Cost. |
|----------------------------|---------------------------|----------------------------------|----------------------------------|-----------------------------------|
| Davlin..... | Lake..... | Kinzie..... | 41 | \$ 820 00 |
| Drexel avenue..... | Fifty-first..... | Fifty-fifth..... | 160 | 3,680 00 |
| Dunning..... | Racine avenue..... | Southport avenue..... | 11 | 231 00 |
| Eastwood avenue..... | Sheffield avenue..... | Halsted..... | 75 | 1,500 00 |
| Elaine place..... | Cornelia..... | Roscoe..... | 45 | 900 00 |
| Evans avenue..... | Forty-second..... | Forty-third..... | 42 | 840 00 |
| Ellis avenue..... | Sixtieth..... | Sixty-third..... | 124 | 2,604 00 |
| Edbrooke place..... | Western avenue..... | Powell avenue..... | 15 | 300 00 |
| Eighty-third..... | B. & O. R. R..... | French avenue..... | No main P. | Not assessed |
| Elston avenue..... | Diversy..... | Belmont..... | 257 | 5,140 00 |
| Eighteenth place..... | Brown..... | May..... | 6 | 108 00 |
| Eighty-ninth..... | Strand..... | Mackinaw..... | | Not assessed |
| Eighty-eighth..... | Superior..... | Mackinaw..... | 16 | 353 00 |
| Eighty-seventh..... | Mackinaw..... | Superior..... | 30 | 660 00 |
| Elston avenue..... | Diversy..... | Snow..... | 171 | 3,420 00 |
| Earl..... | Shields..... | Stewart..... | 4 | Not assessed |
| Elm..... | Larrabee..... | Chatham..... | All in. | Not assessed |
| Fifty-first..... | State..... | Grand boulevard..... | 26 | 421 72 |
| Fletcher..... | Evanston avenue..... | Halsted..... | 71 | 1,420 00 |
| Forrestville..... | Forty-third..... | Forty-fourth..... | 40 | 760 00 |
| Forty-third..... | State..... | I. C. R. R..... | 207 | 4,140 00 |
| Farrell..... | Archer avenue..... | Hickory..... | 18 | 324 00 |
| Forty-seventh..... | Halsted..... | Paulina..... | 251 | 5,020 00 |
| Francisco..... | Monroe..... | Van Buren..... | 7 | 154 00 |
| Fullerton avenue..... | Milwaukee avenue..... | Elston avenue..... | 252 | 5,795 00 |
| Fifth avenue..... | Polk..... | Harrison..... | 5 | Not assessed |
| Fifty-fifth..... | Lake..... | Cottage Grove avenue..... | 123 | 2,440 00 |
| Florimond..... | Franklin..... | Wells..... | All in. | Not assessed |
| S. half Fullerton ave..... | Clark..... | North Park avenue..... | 25 | Not assessed |
| Fifty-fourth..... | Lake avenue..... | Madison avenue..... | 18 | 360 00 |
| Forty-fourth..... | Drexel boulevard..... | Ellis avenue..... | 16 | 304 00 |
| Fullerton avenue..... | Milwaukee avenue..... | Kedzie avenue..... | 98 | 2,744 00 |
| Fifty-fourth..... | Drexel avenue..... | Cottage Grove avenue..... | 26 | 494 00 |
| Fifty-ninth..... | Cottage Grove avenue..... | Jackson avenue..... | 2 | Not assessed |
| Fifty-ninth..... | State..... | South Park avenue..... | 40 | 800 00 |
| Fifty-seventh..... | Cottage Grove avenue..... | Woodlawn avenue..... | 74 | 1,406 00 |
| Fifty-sixth..... | Wright..... | Wallace..... | 46 | 874 00 |
| Forty-sixth..... | State..... | Drexel boulevard..... | 140 | 2,660 00 |
| Forty-seventh..... | Archer avenue..... | Western avenue..... | 524 | 9,432 00 |
| Fisk..... | Twentieth..... | Twenty-second..... | 21 | 378 00 |
| Fortieth..... | Langley avenue..... | Vincennes avenue..... | 63 | 1,896 00 |
| W. Forty-seventh..... | Jackson..... | Van Buren..... | 4 | Not assessed |
| Fifty-first..... | Drexel boulevard..... | East End avenue..... | 178 | 4,450 00 |
| Fremont..... | Willow..... | Bissell..... | 1 | Not assessed |
| Frankfort..... | Robey..... | Hoynes avenue..... | 21 | 378 00 |
| Forty-second..... | Grand boulevard..... | Vincennes avenue..... | 29 | 380 00 |
| Frankfort..... | Robey..... | Hoynes avenue..... | 21 | 378 00 |
| Forty-fifth..... | Wentworth avenue..... | Stewart avenue..... | 43 | 860 00 |
| Fifty-third..... | Cottage Grove avenue..... | Drexel avenue..... | 17 | 374 00 |
| Grace..... | North Clark..... | 120 ft. W. of Lake Michigan..... | 163 | 3,726 00 |
| Gordon terrace..... | Halsted..... | Lake Michigan..... | 46 | Not assessed Private contract. |
| Greenwood avenue..... | Sixtieth..... | Sixty-third..... | 117 | 2,457 00 |
| Greenwich..... | Robey..... | Leavitt..... | 16 | 268 00 |
| Gilpin place..... | Lytle..... | Sibley..... | All in. | Not assessed |
| Grand avenue..... | Western avenue..... | Chicago avenue..... | 144 | 2,880 00 |

WATER OFFICE REPORT.

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STREETS ORDERED FOR IMPROVEMENT—CONTINUED.

| STREET. | FROM | TO | Estimated Number of Pipes. | Estimated Cost. |
|------------------|------------------------|--------------------|----------------------------------|--------------------|
| Hickory | Main. | Lock. | 39 | \$ 780 00 |
| Hamlin avenue | Chicago avenue | North avenue | 301 | 6,020 00 |
| Halsted | Egan. | Sixty-ninth | 987 | 24,575 00 |
| Harvard | Campbell avenue | California avenue | 106 | 2,120 00 |
| Harrison | Clinton | Halsted | 10 | Not assessed |
| Henry | Ashland avenue | Wood. | All in. | Not assessed |
| Hinshe | Clybourn avenue | Blackhawk | All in. | Not assessed |
| Hill | Wells | Sedgwick | 2 | Not assessed |
| Hammond | Eugenie. | Tell court | 6 | Not assessed |
| Hanover | Twenty-ninth | Thirty-third | 26 | 520 00 |
| Hamlin avenue | Lake. | Kinzie | 30 | 720 00 |
| Halsted | Evanston avenue | Sulzer. | 189 | 3,580 00 |
| High | Webster avenue | Fullerton avenue | 12 | 228 00 |
| Hamlin avenue | Kinzie | Chicago avenue | 187 | 2,877 00 |
| Hamlin avenue | Ogden | Twenty-sixth | 181 | 3,429 00 |
| Honore | Sixty-ninth | Seventy-second | 144 | 2,592 00 |
| Hill | Wells | Eastern terminus | All in. | Not assessed |
| Heine | Sedgwick | Cleveland | All in. | Not assessed |
| Jefferson | Twelfth | Fifteenth | 6 | Not assessed |
| Indiana | Ashland avenue | Paulina. | 8 | Not assessed |
| Iglehart place | Twenty-seventh | Southern terminus | 16 | 234 00 |
| Jackson | Fifty-fourth | Fifty-ninth | 250 | 4,750 00 |
| Jane | Western avenue | California avenue | 88 | 1,577 00 |
| Johnson avenue | Archer avenue | Fifty-first | 336 | 6,048 00 |
| Jackson | Forty-sixth | Forty-seventh | 47 | 940 00 |
| Indiana avenue | Egan avenue | Forty-third | 193 | 4,828 00 |
| Ione place | Grand boulevard | Vincennes avenue | 26 | 520 00 |
| Jay | Centre | Garfield avenue | 8 | 160 00 |
| Jay | Webster avenue | Fullerton avenue | 25 | 500 00 |
| Kinzie | Jefferson | May | 32 | 608 00 |
| Kedzie avenue | Central Park boulevard | Augusta | 148 | 2,812 00 |
| Kedzie avenue | Twelfth | Twenty-second | 235 | 4,465 00 |
| Kimbark | South Forty-eighth | Forty-ninth | 46 | 940 00 |
| Lincoln avenue | Belmont avenue | Sheffield avenue | 215 | 4,300 00 |
| Lincoln avenue | Belmont avenue | Addison | 95 | 1,710 00 |
| Lake avenue | Fifty-first | Fifty-seventh | 129 | 2,580 00 |
| Lincoln | Polk | Taylor | 53 | 1,060 00 |
| Loomis | Fourteenth | Sixteenth | 6 | Not assessed |
| Langley avenue | Forty-fourth | Forty-fifth | 31 | 558 00 |
| Eaflin | Sixteenth | Blue Island avenue | All in. | Not assessed |
| Lake | Crawford avenue | W. Forty-eighth | 373 | 9,325 00 |
| Lincoln | Forty-ninth | Fifty-first | 92 | 1,840 00 |
| Lill avenue | Halsted | Lincoln avenue | 25 | 525 00 |
| Langley avenue | Fortieth | Forty-second | 37 | 777 00 |
| Milwaukee avenue | Fullerton avenue | Logan | 115 | 2,530 00 |
| Mather | Clinton | Jefferson | 39 | 780 00 |
| Madison | Fortieth | Forty-eighth | 382 | 10,696 00 |
| Moore | Elm. | Division | 10 | 170 00 |
| Michigan | North Clark | N. Water | 26 | Not assessed |
| Montana | Lincoln avenue | Racine avenue | 113 | 2,034 00 |
| Michigan avenue | Fifty-fifth | Sixty-third | 337 | 9,350 00 |
| Morgan | Fifty-fourth | Garfield boulevard | 30 | 570 00 |
| Monroe avenue | Fifty-fifth | Fifty-eighth | 182 | 2,640 00 |
| Mackinaw avenue | Eighty-seventh | Eighty-ninth | 82 | 1,804 00 |
| Montene court | Milwaukee avenue | Southern terminus | 5 | Not assessed |
| Melrose | Evanston avenue | Eastern terminus | 30 | 600 00 |

STREETS ORDERED FOR IMPROVEMENT—CONTINUED.

| STREET. | FROM | TO | Estimated Number of Pipes. | Estimated Cost. |
|--------------------------------|-----------------------|---|----------------------------------|--------------------|
| Noble | Clark | Sheffield avenue..... | 55 | \$ 1,100 00 |
| Nellie avenue..... | Evanston avenue.... | E. line B. 1 to 7 Handley's in Pine Grove..... | 64 | 1,280 00 |
| Ninetieth..... | Strand | Manistee avenue..... | 59 | 1,416 00 |
| Nineteenth..... | Blue Island avenue... | Ashland avenue..... | All in. | Not assessed |
| Nassau | Jackson..... | Van Buren..... | 5 | Not assessed |
| Nutt court..... | Nineteenth..... | Twentieth | All in. | Not assessed |
| Ontario avenue..... | Eighty-ninth..... | South Chicago..... | 164 | 3,280 00 |
| Ohio | Market..... | Kingsbury | 3 | Not assessed |
| Otis..... | Division..... | Vedder..... | 3 | Not assessed |
| Oakley avenue..... | Milwaukee avenue.... | Hamburg..... | 41 | 820 00 |
| Ontario..... | North Clark..... | St. Clair..... | 12 | 800 00 |
| One Hundred and fifteenth..... | I. C. R. R..... | State..... | 180 | 3,420 00 |
| Owasco | Rockwell..... | California avenue.... | 32 | 480 00 |
| Oak..... | Larrabee..... | Hawthorn avenue.... | All in. | Not assessed |
| Oakley avenue..... | Indiana | Chicago avenue..... | 35 | 700 00 |
| Owasco..... | Forty-sixth..... | Forty seventh..... | 48 | 912 00 |
| Otto | Paulina..... | Wood..... | 46 | 1,150 00 |
| Ontario avenue..... | Seventy-ninth..... | Eightieth | 19 | 399 00 |
| Pine Grove avenue..... | Grace..... | Cornelia..... | 186 | 2,720 00 |
| Pleasant..... | Division..... | Vedder..... | 10 | 180 00 |
| Penn..... | Division..... | Vedder..... | 8 | Not assessed |
| Parkend avenue..... | Sixtieth..... | Sixty-first..... | 36 | 684 00 |
| Portland avenue..... | Thirty-first..... | Thirty-third..... | 47 | 893 00 |
| Pacific avenue..... | Van Buren..... | Harrison | 16 | Not assessed |
| Park avenue..... | Kedzie avenue..... | Homan..... | 69 | 1,380 00 |
| Pearson | Market..... | Western terminus.... | 1 | Not assessed |
| Pitney avenue..... | Archer avenue..... | Thirty-first..... | All in. | Not assessed |
| Paulina..... | Lincoln avenue..... | Otto | 2 | Not assessed |
| Page | Austin avenue..... | Kinzie | All in. | Not assessed |
| Polk | Center avenue..... | Lytle..... | All in. | Not assessed |
| Prairie avenue..... | Twenty-sixth..... | Thirty-first..... | 2 | Not assessed |
| Paxton avenue..... | Seventy-first..... | Seventy-fifth..... | 195 | 3,900 00 |
| Racine avenue..... | Lincoln avenue..... | Addison..... | 235 | 5,318 00 |
| Robey..... | Belmont..... | Roscoe..... | 50 | 1,000 00 |
| Roscoe..... | Robey..... | Western avenue..... | 176 | 3,872 00 |
| Rice | Robey..... | Leavitt..... | 33 | 698 00 |
| Roscoe..... | Evanston avenue..... | Halsted..... | 69 | 1,380 00 |
| Richmond | Chicago avenue..... | Division..... | 128 | 2,816 00 |
| Rockwell..... | North avenue..... | Armitage avenue..... | 58 | 1,278 00 |
| Rockwell..... | Division..... | North avenue..... | 104 | 2,288 00 |
| Rokeby..... | Graceland..... | Addison..... | 107 | 2,354 00 |
| Rice | Wood..... | Lincoln..... | 11 | 220 00 |
| Ruble | Eighteenth..... | Canalport avenue.... | 2 | Not assessed |
| Rush | Erie..... | Chicago avenue..... | All in. | Not assessed |
| Redfield..... | Elston avenue..... | McHenry..... | 23 | 460 00 |
| Randolph..... | Albany avenue..... | W. line lot 17, block 21, Belmont's..... | 8 | Not assessed |
| Sheffield avenue..... | Clark | Addison..... | 70 | 1,400 00 |
| Southport avenue..... | Fullerton..... | Belmont avenue..... | 203 | 3,940 00 |
| Sulzer..... | Sheffield avenue..... | Halsted..... | 85 | 1,870 00 |
| Sibley..... | Macalister..... | Harrison..... | 7 | Not assessed |
| Sebor | Johnson..... | Clinton..... | 7 | Not assessed |
| Superior..... | Leavitt..... | Rockwell..... | 142 | 8,520 00 |
| Sheffield avenue..... | North avenue..... | Clybourn..... | 25 | 500 00 |
| Sedgwick..... | Chicago avenue..... | Erie..... | All in. | Not assessed |

STREETS ORDERED FOR IMPROVEMENT—CONTINUED.

| STREET. | FROM | TO | Estimated Number of Pipes. | Estimated Cost. |
|-------------------------------|-------------------------|-------------------------|----------------------------------|--------------------|
| Sixty-third | Stony Island avenue. | Cottage Grove avenue | 289 | \$ 5,780 00 |
| South Park avenue. | Fifty-first | Fifty-fifth | 96 | 1,824 00 |
| Sixty-eighth | Wentworth | Yale | 8 | Not assessed |
| Street S. of Bickerdike S. Y. | Bickerdike | Armour | All in. | Not assessed |
| Shelby court | Nineteenth | Twentieth | All in. | Not assessed |
| Sixty-first | Madison | Cottage Grove avenue | 19 | 361 00 |
| Sixty-second | Greenwood avenue. | Cottage Grove avenue | 60 | 304 00 |
| Sacramento | Van Buren | Twelfth | 80 | 1,520 00 |
| Superior | Rockwell | Washtenaw avenue. | 13 | 260 00 |
| Spaulding avenue. | Ogden avenue | C. B. & Q. R. R. | 60 | 1,140 00 |
| Stewart avenue. | Normal Parkway | Seventy-first | 108 | 1,944 00 |
| Sawyer avenue | Douglas Park avenue. | Twenty-second | 118 | 2,242 00 |
| Seventeenth | Fisk | Center avenue | All in. | Not assessed |
| Sixty-seventh | Wright | Honore | 22 | 440 00 |
| Sheridan avenue. | Twelfth | Fillmore | 34 | 680 00 |
| Sixty-second | Halsted | Wallace | 88 | 1,660 00 |
| State | Division | North avenue | 4 | Not assessed |
| Shaughnessy | Goethe | Sigel | 7 | Not assessed |
| Seventeenth | Lincoln | Robey | 23 | 433 00 |
| Seipp avenue | Seventy-first | Seventy-third | 80 | 1,600 00 |
| Sixty-first | Wallace | Halsted | 82 | 1,722 00 |
| Strand | Harbor | Eighty-ninth | 80 | 990 00 |
| Sixty-sixth | Stewart avenue. | Sherman | 50 | 1,000 00 |
| Sixty-fourth | Wallace | Winter | 41 | 820 00 |
| Sixty-ninth | Halsted | California avenue. | 621 | 11,799 00 |
| Sherman | Sixty-third | Sixty-fifth | 61 | 1,220 00 |
| String | Canalport avenue. | Twenty-first | 20 | 360 00 |
| Thirty-third | R. I. R. R. | Halsted | 109 | 2,180 00 |
| Thirtieth | Halsted | Stewart avenue | 18 | 176 00 |
| Tell court | Sedgwick | Wells | 5 | Not assessed |
| Troy | Colorado avenue. | Jackson | 7 | 133 00 |
| Twenty-second | Trumble avenue. | Lawndale avenue. | 61 | 1,408 00 |
| Thirty-eighth | Stewart avenue. | Laurel | 79 | 1,501 00 |
| Turner | Ogden avenue. | Twenty-first | 50 | 900 00 |
| Twelfth | Garfield boulevard. | Crawford avenue | 94 | 2,350 00 |
| Troy | Twelfth | Douglas Park blvd | 78 | 1,482 00 |
| Twenty-sixth | Lawndale avenue. | Hamlin avenue | 8 | 152 00 |
| Twenty-third | Lawndale avenue. | Hamlin avenue | 15 | 225 00 |
| Twenty-second | Lawndale avenue. | Hamlin avenue | 32 | 704 00 |
| Thirty-eighth | Indiana avenue. | Grand boulevard | 6 | Not assessed |
| Twenty-second | Hamlin avenue. | Ogden avenue | 41 | 861 00 |
| Twomey | Sedgwick | Heine | 1 | Not assessed |
| Trustee | Kinzie | Austin avenue | 4 | Not assessed |
| Thirty-sixth | Vincennes avenue. | Stanton avenue | All in. | Not assessed |
| Twenty-third | Central Park avenue. | Lawndale | 1 | Not assessed |
| Twenty-first | Halsted | Johnson | 1 | Not assessed |
| Turner avenue | Douglas Park boulevard. | Ogden avenue | 126 | 2,294 00 |
| Twenty-eighth | Stewart avenue. | Halsted | 15 | 315 00 |
| Twenty-seventh | Portland avenue. | Stewart | 8 | 168 00 |
| Van Horn | Ashland avenue. | Wood | 5 | Not assessed |
| Van Horn | Lafin | Ashland avenue | 1 | Not assessed |
| Van Buren | Forty sixth | Forty-seventh | 48 | 912 00 |
| Willmot avenue | Leavitt | Armitage avenue | 48 | 912 00 |
| Wellington | Clark | Halsted avenue | 11 | 203 50 |
| Windsor | Sheffield | Halsted | 76 | 1,349 00 |
| Wabash | Fifty-fifth | Sixty-third | 356 | 8,544 00 |

STREETS ORDERED FOR IMPROVEMENT—CONTINUED.

| STREET. | FROM | TO | Estimated Number of Pipes. | Estimated Cost. |
|------------------------|-------------------------|----------------------------------|----------------------------------|---------------------|
| Wallace | Egan avenue..... | Forty-seventh..... | 280 | \$ 5,040 00 |
| Wood | Armitage..... | Asylum place..... | 25 | 450 00 |
| Wright | Sixty-ninth..... | Seventy-second..... | 138 | 2,484 00 |
| Wabansia avenue..... | Ashland avenue..... | Lincoln..... | All in. | Not assessed |
| Washtenaw avenue..... | Ogden avenue..... | Sixteenth..... | 22 | 440 00 |
| Wrightwood avenue..... | Racine avenue..... | C. & E. R. R..... | 35 | 700 00 |
| Wharton..... | Sixtieth..... | Sixty-third..... | 126 | 2,808 00 |
| Walnut..... | Homan avenue..... | Central Park avenue..... | Part of street not open | Not assessed |
| Western avenue..... | Blue Island avenue..... | Illinois and Michigan Canal..... | 157 | 3,140 00 |
| Washington..... | Canal..... | Halsted..... | All in. | Not assessed |
| Windett avenue..... | Halsted..... | Sheffield avenue..... | 41 | 820 00 |
| Winter..... | Forty-seventh..... | Fifty-fifth..... | 302 | 6,040 00 |
| Wabansia avenue..... | Robey..... | Milwaukee avenue..... | 17 | 357 00 |
| Wabansia avenue..... | Western avenue..... | Milwaukee avenue..... | 37 | 740 00 |
| Washtenaw avenue..... | Twelfth..... | Ogden avenue..... | 35 | 735 00 |
| Wright | Sixty-fifth..... | Sixty-ninth..... | 115 | 2,300 00 |
| Yates avenue..... | Seventy-first..... | Seventy-ninth..... | 368 | 7,728 00 |
| TOTAL..... | | | 21,598 | \$453,431 22 |

Our street improvements are steadily on the increase.

In the year 1888 I returned to the special assessment department estimates for 5,177 pipes.

In 1889 the number returned was 12,891, and during the year 1890 the number returned was 21,598, covering a record of 729 pages, while one volume of 350 pages held all the estimates for water service pipes from the date of the "Great Fire," October, 1871, to November, 1880, a period of nine years.

When we take into consideration that every lot, or part of lot, where an assessment is made for a water service pipe, has got to be as carefully described as to "*metes and bounds*" as though it was a part of the general tax warrant, you can have some idea of the increase of labor required in getting up these estimates, the initiatory work being all prepared by Mr. Erbe, who has given nearly all his time to this work during the past year.

After Erbe's copy in pencil is made, it is entered on my record of water service pipes, then a copy is made for the special assessment department; afterwards, when contract is let, a schedule is made out for the permit clerk, on which he issues two copies, one for his plumbing inspector and one to the contractor.

It will be observed that our water service contracts have increased in about the same degree as the special assessments.

We put in 5,387 pipes in 1888, 3,253 in 1889 and 9,528 in 1890, being more than double the amount of the two preceding years, at a cost of \$150,-315.10, embracing one hundred and fifty contracts.

Every contractor's bill has been carefully compared by me with the inspector's report, and all discrepancies corrected before being returned to Special Assessment Superintendent for final vouchers.

Our draughtsmen have not made as much progress as I would like, on getting up permanent plat books, since their night work was stopped.

The routine work in getting up necessary tracings from the county records and city plats for special assessments of water service pipes, annual examinations of water inspectors and special examinations, require all their time during office hours, but we are in hopes of having less work now on the annexed territory, when more can be done on the plat books.

I would especially recommend that your suggestion for more room for this sub-department be reiterated in your present report.

Respectfully submitted,

THOMAS PATTISON,

Water Assessor.

PERMIT CLERK'S REPORT.

CHICAGO, January 31, 1891.

HENRY E. HAMILTON,

Superintendent.

DEAR SIR:—I have the honor to present herewith my annual report, in tabulated form, of all work performed in my sub-department for the fiscal year ending December 31, 1890, together with a statement of the receipts and expenditures, and an inventory of material on hand.

The number of screw ferrules inserted during the year 1890 was as follows:

| MONTHS. | $\frac{5}{8}$ inch Screw Ferrules Inserted. | $\frac{3}{4}$ inch Screw Ferrules Inserted. | 1 inch Screw Ferrules Inserted. | Grand Total of Screw Ferrules Inserted. |
|----------------|--|--|--|--|
| January..... | 379 | 80 | 11 | 470 |
| February..... | 301 | 166 | 12 | 479 |
| March..... | 373 | 379 | 12 | 764 |
| April..... | 553 | 510 | 12 | 1,075 |
| May..... | 738 | 489 | 14 | 1,241 |
| June..... | 678 | 404 | 9 | 1,091 |
| July..... | 660 | 277 | 17 | 954 |
| August..... | 721 | 467 | 11 | 1,199 |
| September..... | 555 | 478 | 31 | 1,064 |
| October..... | 883 | 372 | 18 | 1,273 |
| November..... | 643 | 262 | 30 | 935 |
| December..... | 501 | 172 | 23 | 696 |
| TOTAL..... | 6,985 | 4,056 | 200 | 11,241 |

The number of driven ferrules inserted during the year 1890 was as follows :

| MONTHS. | $\frac{3}{4}$ inch Driven Ferrules Inserted. | $\frac{1}{2}$ inch Driven Ferrules Inserted. | 1 inch Driven Ferrules Inserted. | Grand Total Driven Ferrules Inserted. |
|----------------|---|---|---|--|
| January..... | 24 | 1 | 1 | 26 |
| February..... | 1 | ..... | ..... | 1 |
| March..... | 2 | 68 | ..... | 70 |
| April..... | 24 | 1 | ..... | 25 |
| May..... | 1 | 851 | ..... | 852 |
| June..... | 11 | 1,266 | ..... | 1,277 |
| July..... | 65 | 1,102 | 1 | 1,168 |
| August..... | 61 | 1,288 | 5 | 1,349 |
| September..... | 58 | 1,802 | ..... | 1,860 |
| October..... | 11 | 1,773 | ..... | 1,784 |
| November..... | 7 | 1,884 | 2 | 1,893 |
| December..... | 41 | 730 | ..... | 771 |
| TOTAL..... | 801 | 10,261 | 9 | 10,571 |

SUMMARY OF FERRULES INSERTED.

| | $\frac{3}{4}$ inch. | $\frac{1}{2}$ inch. | 1 inch. | Grand Total. |
|----------------------|---------------------|---------------------|---------|-----------------|
| Screw ferrules..... | 6,985 | 4,056 | 200 | 11,241 |
| Driven ferrules..... | 801 | 10,261 | 9 | 10,571 |
| GRAND TOTAL..... | 7,786 | 14,317 | 209 | 21,812 |

The ferrules inserted as per above tables were divided among the different divisions of the city, as follows:

| | | $\frac{1}{2}$ Inch. | $\frac{3}{4}$ Inch. | 1 Inch. | Total Screw Ferrules. | Total Driven Ferrules. |
|---------------------------------|----------|---------------------|---------------------|---------|-----------------------------|------------------------------|
| Inserted in old part of City... | Screw.. | 2,324 | 1,949 | 130 | 4,403 | ..... |
| | Driven.. | 243 | 5,479 | 2 | ..... | 5,724 |
| Inserted in Lake View..... | Screw.. | 658 | 751 | 13 | 1,422 | ..... |
| | Driven.. | 30 | 1,988 | ..... | ..... | 2,018 |
| Inserted in Hyde Park..... | Screw.. | 1,858 | 874 | 34 | 2,966 | ..... |
| | Driven.. | ..... | 1,562 | 5 | ..... | 1,567 |
| Inserted in Town of Lake..... | Screw.. | 2,274 | 427 | 21 | 2,722 | ..... |
| | Driven.. | 1 | 1,226 | 2 | ..... | 1,229 |
| Inserted in Calumet..... | Screw.. | 150 | 1 | ..... | 151 | ..... |
| | Driven.. | 1 | ..... | ..... | ..... | 1 |
| Inserted in Jefferson..... | Screw.. | 207 | 52 | 2 | 261 | ..... |
| | Driven.. | 25 | 3 | ..... | ..... | 28 |
| Inserted in Cicero..... | Screw.. | 14 | 2 | ..... | 16 | ..... |
| | Driven.. | 1 | 3 | ..... | ..... | 4 |
| TOTALS..... | | 7,286 | 14,317 | 209 | 11,241 | 10,571 |

The following ferrules were inserted for contractors, under contracts let by the Commissioner of Public Works for water service pipes in streets to be improved:

| | Three-quarter inch Ferrules. |
|---|---------------------------------|
| Inserted in the old part of the city..... | 5,217 |
| Inserted in Lake View..... | 1,783 |
| Inserted in Hyde Park..... | 1,290 |
| Inserted in the Town of Lake..... | 1,288 |
| Grand Total..... | 9,528 |

The following ferrules were inserted as re-taps for pipe foreman in replaced street mains:

| | $\frac{1}{2}$ Inch. | $\frac{3}{4}$ Inch. | 1 Inch. | Grand Totals. |
|---------------------------------------|---------------------|---------------------|---------|---------------|
| Inserted in the old part of city..... | 173 | 133 | 8 | 307 |
| Inserted in Lake View..... | 8 | 19 | ..... | 27 |
| Inserted in Hyde Park..... | 9 | 79 | 1 | 89 |
| Inserted in the Town of Lake..... | 2 | 2 | ..... | 4 |
| TOTALS..... | 191 | 233 | 4 | 427 |

The following ferrules were inserted for sundry applicants at the water office for water supply to buildings :

| | Number of Ferrules. |
|---|---------------------|
| Inserted in the old part of the city..... | 4,608 |
| Inserted in Lake View..... | 1,630 |
| Inserted in Hyde Park..... | 2,454 |
| Inserted in the Town of Lake..... | 8,947 |
| Inserted in Calumet..... | 152 |
| Inserted in Cicero..... | 20 |
| Inserted in Jefferson..... | 289 |
| Grand Total..... | 18,095 |

Of the ferrules inserted for sundry applicants as given above the following were inserted for enlarged service pipes to buildings previously supplied:

| | Number of Ferrules. |
|---|---------------------|
| Inserted in the old part of the city..... | 548 |
| Inserted in Lake View..... | 57 |
| Inserted in Hyde Park..... | 42 |
| Inserted in the Town of Lake..... | 43 |
| Grand Total..... | 690 |

The actual increase of pipes to the number inserted in previous years in the different divisions of the city was as follows :

| | Number Inserted. | Actual Increase. |
|---|---------------------|---------------------|
| Total ferrules inserted in old part of the city..... | 10,127 | |
| Less 307 re-taps and 548 for enlarged service pipes.... | 855 | |
| | | 9,272 |
| Total ferrules inserted in Lake View..... | 8,440 | |
| Less 27 re-taps and 57 for enlarged service pipes..... | 84 | |
| | | 3,356 |
| Total ferrules inserted in Hyde Park..... | 3,833 | |
| Less 89 re-taps and 42 for enlarged service pipes..... | 131 | |
| | | 3,702 |
| Total ferrules inserted in the Town of Lake..... | 3,951 | |
| Less 4 re-taps and 43 for enlarged service pipes..... | 47 | |
| | | 3,904 |
| Total ferrules inserted in Calumet..... | 152 | |
| Less for re-taps and enlarged service pipes..... | | 152 |
| Total ferrules inserted in Cicero..... | 289 | |
| Less for re-taps and enlarged service pipes..... | | 289 |
| Total ferrules inserted in Jefferson..... | 20 | |
| Less for re-taps and enlarged service pipe..... | | 20 |
| Total actual increase for the whole city..... | | 20,695 |

Tabular statement showing by comparison the number of ferrules inserted each year for the past ten years, and the total number in use on January 1, 1891:

| | Year. | Number of Ferrules in old part of the city. | Number of Ferrules in Suburbs. | Total Number of Ferrules in use. |
|------------------------------|-------|--|---|---|
| Inserted previous to..... | 1880 | 68,510 | ..... | ..... |
| | 1880 | 4,489 | ..... | 67,949 |
| | 1881 | 5,678 | ..... | 73,627 |
| | 1882 | 5,218 | ..... | 78,840 |
| | 1883 | 6,656 | ..... | 85,496 |
| | 1884 | 6,687 | ..... | 92,183 |
| | 1885 | 6,555 | ..... | 98,688 |
| | 1886 | 8,063 | ..... | 106,771 |
| | 1887 | 8,807 | ..... | 115,578 |
| | 1888 | 10,089 | ..... | 125,667 |
| | 1889 | 7,617 | ..... | ..... |
| *Lake View, 6 months..... | 1889 | ..... | 889 | 137,189 |
| *Hyde Park, 6 months..... | 1889 | ..... | 1,780 | |
| *Town of Lake, 6 months..... | 1889 | ..... | 1,286 | |
| | 1890 | 10,127 | ..... | 159,001 |
| Lake View..... | 1890 | ..... | 8,440 | |
| Hyde Park..... | 1890 | ..... | 3,888 | |
| Town of Lake..... | 1890 | ..... | 3,951 | |
| Calumet..... | 1890 | ..... | 152 | |
| Cicero..... | 1890 | ..... | 289 | |
| Jefferson | 1890 | ..... | 20 | |

*The total number of ferrules inserted in the suburbs previous to annexation is not known.

During the year 1890 this department issued the following permits, viz:

| | |
|--|----------|
| For tapping water mains for service pipes to houses not previously supplied..... | \$ 7,456 |
| For tapping water mains for enlarged service pipes for houses previously supplied .. | 690 |
| For tapping water mains for pipes to inside of curb line for future use..... | 9,528 |
| For connections to service pipes in—inside of curb line..... | 1,407 |
| For 4-inch cast iron pipes to be used as service pipes..... | 36 |
| For 6-inch cast iron pipes to be used as service pipes..... | 7 |
| For T connections for 1½-inch and 2-inch service pipes..... | 118 |
| For special or miscellaneous permits..... | 952 |
| For moving houses..... | 1,407 |
| Grand Total..... | \$21,596 |

MISCELLANEOUS ITEMS.

| | |
|---|--------|
| Number of inspections made by the plumbing inspectors ... | 16,846 |
| Number of plumbers' bonds filed..... | 425 |
| Number of plumbers' licenses issued..... | 425 |
| Number of leak reports received..... | 657 |

RECEIPTS—EARNINGS.

| | |
|--|------------------|
| Amounts received for inserting ferrules (of all sizes) as per cash book..... | \$38,732.45 |
| Amounts received for permits giving permission to connect with pipes in at curb line on sundry streets in annexed suburbs on which only a part of the assessment had been collected..... | 738.50 |
| Amount to be credited to water fund for 9,528 ½-inch ferrules inserted for street improvement water service pipes and deducted from contractors' bills: | |
| 9,515 @ \$3.50 each..... | \$33,302.50 |
| 13 @ \$2.00 each..... | 26.00 |
| | <u>33,328.50</u> |
| Amount received for plumbers' licenses @ \$1.00..... | 425.00 |
| Amount received for iron boxes from Lake View..... | 208.50 |
| Amount received for old brass sold..... | 34.00 |
| For 427 re-taps inserted in replaced street mains, as follows: | |
| 191 ½-inch ferrules @ \$3.00..... | 573.00 |
| 232 ½-inch ferrules @ \$3.50..... | 812.00 |
| 4 1-inch ferrules @ \$5.40..... | 21.60 |
| Total receipts—earnings..... | \$74,868.55 |

EXPENDITURES.

| | |
|---|--------------------|
| Salaries paid Permit Clerk and Assistants..... | \$ 7,493 21 |
| Salaries paid Plumbing Inspectors..... | 13,915 79 |
| Salaries paid Tappers..... | 11,025 40 |
| Amount paid for hired day labor..... | 3,431 50 |
| Paid for expressage..... | 5,958 54 |
| Cost of Permit Clerk's books, blanks, etc..... | 103 18 |
| Cost of new parts of screw tapping machines..... | 446 10 |
| Cost of 6,983 $\frac{3}{8}$ -inch screw ferrules, inserted, | |
| 6,600 @ 40c..... | \$2,640 00 |
| 885 @ 51c..... | 196 35 |
| | <u>2,836 35</u> |
| Cost of 4,056 $\frac{1}{4}$ -inch screw ferrules, inserted @ 54c..... | 2,190 24 |
| Cost of 200 1-inch screw ferrules, inserted, | |
| 118 @ \$1.30..... | \$153 40 |
| 82 @ 60c..... | 55 20 |
| | <u>202 60</u> |
| Cost of 901 $\frac{1}{2}$ -inch driven ferrules, inserted @ 45c..... | 135 45 |
| Cost of 10,261 $\frac{3}{4}$ -inch driven ferrules, inserted, | |
| 5,500 @ 58 $\frac{1}{2}$ c..... | \$3,217 50 |
| 4,761 @ 60c..... | 2,856 60 |
| | <u>6,074 10</u> |
| Cost of 9 1-inch driven ferrules, inserted @ \$1.30..... | 11 70 |
| Cost of 121 $\frac{3}{8}$ -inch screw ferrules, inserted as re-taps, @ 40c..... | 48 40 |
| Cost of 58 $\frac{3}{4}$ -inch screw ferrules, inserted as re-taps, @ 54c..... | 31 32 |
| Cost of 8 1-inch screw ferrules, inserted as re-taps, @ \$1.30..... | 3 90 |
| Cost of 70 $\frac{1}{2}$ -inch driven ferrules, inserted as re-taps, @ 45c..... | 31 50 |
| Cost of 174 $\frac{3}{4}$ -inch driven ferrules, inserted as re-taps, @ 58 $\frac{1}{2}$ c..... | 101 79 |
| Cost of 1 1-inch driven ferrules, inserted as re-taps, @ \$1.30..... | 1 30 |
| Cost of car fare for Plumbing Inspectors and Tappers..... | 494 96 |
| Cost of miscellaneous material for use of Tappers..... | 91 61 |
| Paid for a horse for use of Tapper..... | 135 00 |
| Cost of advertising for bids to lay water service pipes..... | 23 50 |
| Cost of sundry maps for use of Permit department..... | 453 50 |
| Money refunded on permits canceled..... | 17 80 |
| Maintenance of three horses at water works stables..... | 1,847 53 |
| Cost of drills used up in screw tapping machines, as follows: | |
| 65 $\frac{1}{2}$ -inch @ \$4.05..... | 263 25 |
| 49 $\frac{3}{4}$ -inch @ \$4.95..... | 44 55 |
| 3 1-inch @ \$5.85..... | 17 55 |
| Cost of drills used up on smooth-bore tapping machines, as follows: | |
| 19 $\frac{1}{2}$ -inch, 75 $\frac{3}{4}$ -inch, and 4 1-inch—total 78—@ \$1.60 each..... | 156 80 |
| Plumbing bills paid for lengthening out service pipes to inside of new curb lines, on sundry streets..... | 435 73 |
| Cost of hardened steel sockets, as follows: | |
| 18 $\frac{3}{4}$ -inch @ \$2.75..... | 49 50 |
| 18 $\frac{1}{2}$ -inch @ \$2.70..... | 48 60 |
| | <u>\$58,126 25</u> |
| Total expenditures..... | \$58,126 25 |
| Total receipts—earnings..... | \$74,868 55 |
| Total expenditures..... | <u>58,126 25</u> |
| Net gain..... | \$16,742 30 |

INVENTORY OF PROPERTY—WATER PERMIT DEPARTMENT,
DECEMBER 31, 1890.

| | $\frac{3}{8}$ inch Driven Ferrules. | $\frac{3}{8}$ inch Driven Ferrules. | $\frac{3}{8}$ inch Driven Ferrules. | 1 inch Driven Ferrules. |
|---|---|---|---|-------------------------------|
| On hand December 31, 1889..... | 42 | 2,481 | 240 | 477 |
| Purchased during 1890..... | | | 13,100 | |
| TOTAL..... | 42 | 2,481 | 13,340 | 477 |
| Used during 1890..... | | 301 | 10,261 | 9 |
| On hand December 31, 1890..... | 42 | 2,180 | 2,891 | 466 |
| Less ferrules found damaged..... | 27 | 149 | 1 | 8 |
| Perfect ferrules on hand December 31, 1890..... | 15 | 2,031 | 2,890 | 468 |

| | $\frac{1}{2}$ inch Screw Ferrules. | $\frac{1}{2}$ inch Screw Ferrules. | $\frac{1}{2}$ inch Screw Ferrules. | 1 inch Screw Ferrules. |
|---|--|--|--|------------------------------|
| On hand December 31, 1889..... | 6 | 304 | 5,080 | 118 |
| Screw ferrules received from the Town of Washington Heights.... | 9 | 7 | 6 | |
| Purchased during 1890..... | | 7,850 | 1,100 | 133 |
| TOTAL..... | 15 | 8,161 | 6,186 | 251 |
| Used during 1890..... | | 6,985 | 4,056 | 200 |
| On hand December 31, 1890..... | 15 | 1,149 | 1,899 | 51 |
| Less ferrules found damaged..... | | 58 | 14 | |
| Perfect ferrules on hand December 31, 1890..... | 15 | 1,091 | 1,885 | 51 |

SUMMARY OF FERRULES ON HAND.

| | $\frac{3}{8}$ inch Ferrules. | $\frac{1}{2}$ inch Ferrules. | $\frac{3}{4}$ inch Ferrules. | 1 inch Ferrules. | Grand Total. |
|--|---------------------------------|---------------------------------|---------------------------------|---------------------|-----------------|
| Driven ferrules on hand December 31, 1890... | 15 | 2,081 | 2,894 | 574 | 5,514 |
| Screw ferrules on hand December 31, 1890... | 15 | 1,091 | 1,885 | 62 | 3,053 |
| TOTAL | 30 | 3,122 | 4,779 | 636 | 8,567 |

| | $\frac{1}{8}$ inch Screw Drills. | $\frac{1}{4}$ inch Screw Drills. | $\frac{3}{8}$ inch Screw Drills. | 1 inch Screw Drills. | $\frac{1}{2}$ inch Smooth Bore Drills. | $\frac{3}{4}$ inch Smooth Bore Drills. | $\frac{1}{2}$ inch Smooth Bore Drills. | 1 inch Smooth Bore Drills. |
|---------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------|---|---|---|-------------------------------|
| On hand December 31, 1889..... | 2 | 95 | 81 | 32 | 8 | 34 | 49 | 8 |
| Purchased during 1890..... | ..... | 24 | 86 | ..... | ..... | 24 | 72 | ..... |
| Received from Washington Heights..... | 1 | 1 | 1 | 1 | ..... | ..... | ..... | ..... |
| TOTAL | 3 | 120 | 118 | 33 | 8 | 58 | 121 | 8 |
| Used up during 1890..... | ..... | 65 | 49 | 8 | 2 | 19 | 75 | 4 |
| On hand December 31, 1890..... | 3 | 55 | 69 | 30 | 1 | 39 | 46 | 4 |

| | Extra Couplings for $\frac{3}{8}$ inch Driven Ferrules. | Extra Couplings for $\frac{1}{2}$ inch Driven Ferrules. | Extra Couplings for $\frac{3}{4}$ inch Screw Ferrules. | Extra Couplings for $\frac{1}{2}$ inch Screw Ferrules. |
|--------------------------------|---|---|--|--|
| On hand December 31, 1889..... | 17 | 170 | 219 | 180 |
| Purchased during 1890..... | 100 | 220 | 330 | 330 |
| TOTAL | 117 | 390 | 549 | 510 |
| Used during 1889..... | 72 | 116 | 32 | 2 |
| On hand December 31, 1890..... | 45 | 274 | 517 | 508 |

six and one-half miles ; south-west of the City Hall seven and one-fourth miles, and south of the City Hall fourteen miles. As far as practicable the men were sent out on the different trains passing through the suburbs, from whence vehicles were used, hired by the department.

This method has been found to work well, and in my opinion is the best that could be adopted, as it saves a great deal of travel that otherwise would have to be done by horses, and in the end costs no more than if the horses and wagons were all owned by the department.

The horses and wagons owned by the department are three, or the same as last year, and were used principally to fill orders within reasonable distances from the City Hall. The average number of plumbing inspectors employed during the year was fourteen, or four more than the previous year. Last spring it became apparent that a small force of laborers would be necessary to locate and shut off the great number of private iron pipes allowed to be put in previous to annexation by the authorities of Hyde Park, the town of Lake, and Lake View, of which no records had been kept. This force was placed under Mr. Patrick Langan, one of the plumbing inspectors, and very efficient services rendered on those streets in the suburbs about to be improved; this will prevent, in a great measure, the tearing up of paved streets, to shut off rusted out iron pipes.

This force has now been disbanded, but will be again required next spring, after contracts have been let for laying more service pipes.

This department is in great need of better office facilities. Our present quarters are cramped and inadequate to properly manage the ever increasing tide of business; besides being badly lighted and poorly ventilated. We need more desk room, and more tables on which to spread the maps and atlases required. We should also have better maps and atlases of the town of Lake. The atlases we now have of that part of the city are out of date, and in the main incorrect, excepting the few new plats for that part of the town of Lake west of Western avenue.

In closing this report allow me to express my obligations for the uniform kindness, and the courtesies, shown me by yourself, and the officers of bureaus with whom I have come in contact in the discharge of my official duties.

Respectfully submitted,

HENRY G. NAPER,

Permit Clerk Water Department.

REPORT
OF THE
Bureau of Maps
CITY OF CHICAGO

MAP DEPARTMENT.

CHICAGO, January, 1891.

HON. W. H. PURDY,

Commissioner of Public Works.

DEAR SIR:—I have the honor to submit herewith the Annual Report of the Map Department for the year 1890, accompanied by a map showing the growth of the city of Chicago through the various annexations from the original town to its present extension, and also by a historical sketch explanatory of said map :

THE GROWTH OF CHICAGO.

THE "TOWN OF CHICAGO"

(John H. Kinzie, Gurdon S. Hubbard, Ebenezer Goodrich, John K. Boyer and John S. C. Hogan, first Trustees,) was incorporated by Act of February 11, 1835. It comprised all that territory covered by sections 9 and 16, north and south fractional section 10 and fractional section 15, in town 39 north, range 14 east of the 3rd principal meridian ; " Provided, that the authority of the Board of Trustees of the said town of Chicago shall not extend over the south fractional section 10 until the same shall cease to be occupied by the United States."

THE "CITY OF CHICAGO."

Incorporated by Act of March 4, 1837, comprised "the district of country in the county of Cook, etc., known as the east $\frac{1}{2}$ of the southeast $\frac{1}{4}$ of section 33, township 40 north, range 14 east, and fractional section 34, township 40 north, range 14 east ; also the east $\frac{1}{4}$ of sections 6, 7, 18 and 19, all of fractional section 3, and of sections 4, 5, 8, 9, and fractional section 10 (except the southwest fractional $\frac{1}{4}$ thereof, occupied as a military post, until the same shall become private property), fractional section 15 ; sections 16, 17, 20, 21, and fractional section 22, township 39 north, range 14 east."

FIRST EXTENSION OF CITY LIMITS.

Act of February 16, 1847, provides : "That the district of country in the county of Cook, etc., known and described as follows, to-wit : All that

DEPARTMENT OF PUBLIC WORKS.

part of township 39 north, range 14 east, of the third principal meridian, which lies north of the north line of sections 27, 28, 29 and 30 of said township, and the east $\frac{1}{2}$ of section 33, township 40 north, range 14 east, and fractional section 34, township 40 north, range 14 east, shall hereafter be included in, constitute, and be known by the name of City of Chicago."

SECOND EXTENSION OF CITY LIMITS.

Act of February 12, 1853, provides: "That the corporate limits and jurisdiction of the city of Chicago shall be and the same are hereby extended so as to embrace and include within the same the several tracts of land hereinafter described, which shall be deemed parts of the divisions of the said city named in connection therewith, as follows:

"North Division: All those parts of sections 31 and 32, township 40 north, range 14 east, lying east of the center of the North branch of the Chicago river, and the west $\frac{1}{2}$ of section 33, in same township and range.

"South Division: All of fractional section 27, township 39 north, range 14 east, and so much of the shore and bed of the lake as lies within one mile east of said section, and all of that part of section 28, same township and range, lying south and east of the South branch of the Chicago river.

"West Division: All those parts of sections 28, 29 and 30, township 39 north, range 14 east, lying north of the South branch of the Chicago river."

THIRD EXTENSION OF CITY LIMITS.

Act of February 13, 1863, provides: "The corporate limits and jurisdiction of the city of Chicago shall embrace and include within the same all of township 39 north, range 14 east, of the third principal meridian, and all of sections 31, 32 and 33, and fractional section 34, township 40 north, range 14 east, together with so much of the waters and bed of Lake Michigan as lies within one mile of the shore thereof, and east of the territory aforesaid."

FOURTH EXTENSION OF CITY LIMITS.

Act of February 27, 1869, provides: "That the territorial limits of the city of Chicago shall be and are hereby extended as follows: That part of section 30, township 40 north, range 14 east, which lies west of the North branch of the Chicago river; sections 1, 2, 11, 12, 13, 14, 23, 24, 25, 26, and that part of sections 35 and 36 lying northwest of the center of the Illinois and Michigan canal, all in township 39 north, range 13 east, shall be and are hereby added to the city."

FIFTH EXTENSION OF CITY LIMITS.

Act of May 16, 1887, provides: "That section 36, township 40 north, range 13 east, town of Jefferson, shall be and is hereby added to the city."

MAP DEPARTMENT.

SIXTH EXTENSION OF CITY LIMITS.

Act of April 29, 1889, provides: "That that part of sections 35 and 36 lying southeasterly of the center of Illinois and Michigan canal, in township 39, north of range 13, east of third principal meridian, in Cook County, Illinois."

Also, "that sections 3, 10, 15, and the east $\frac{3}{4}$ of sections 22, 27 and 34, lying northwest of the center of the Illinois and Michigan canal, in township 39, north range 13, east of the third principal meridian, etc."

Also, "that section 25, township 40, north of range 13, east of third principal meridian, etc., be and the same is hereby declared to be annexed to the incorporated city of Chicago."

SEVENTH EXTENSION OF CITY LIMITS.

July 15, 1889, an order was filed in the County Court of Cook County, declaring the result of a special election held June 29, 1889, by which the following territory, all situated in the county of Cook, Illinois, was annexed to the city of Chicago, viz.:

The east $\frac{1}{2}$ of sections 4 and 9, township 39 north, range 13 east, of third principal meridian, in the town of Cicero; the city of Lake View, the village of Hyde Park, the town of Lake, and the town of Jefferson.

EIGHTH EXTENSION OF CITY LIMITS.

By election held April 1, 1890.

The village of Gano: The south $\frac{1}{2}$ of section 21, all of section 28 north of the Indian boundary line, that part of section 28 south of the Indian boundary line, lying west of the east line of said village of Gano, and north of the Little Calumet river; also that part of section 33 north of the Indian boundary line, lying north of the Little Calumet river, and that part of the east $\frac{1}{2}$ of the northwest $\frac{1}{4}$ of section 33 south of the Indian boundary line, lying north of the Little Calumet river, all in town 37 north, range 14 east of the third principal meridian, being 1.80 square miles.

NINTH EXTENSION OF CITY LIMITS.

By Ordinance passed May 12, 1890, sections 5 and 6, also the north-east $\frac{1}{4}$ of section 4, except the west fifty feet of the south 666 feet thereof; also the northwest $\frac{1}{4}$ of section 4, except the south 666 feet thereof; also the southeast $\frac{1}{4}$ of section 4, except the west fifty feet thereof; also the northeast $\frac{1}{4}$ section 9, except the west fifty feet thereof; all in town 37 north, range 14 east of the third principal meridian, being 2.92 square miles.

DEPARTMENT OF PUBLIC WORKS.

TENTH EXTENSION OF CITY LIMITS.

By election held November 4, 1890.

1. Village of Washington Heights: Section 7, the west $\frac{3}{4}$ and northeast $\frac{1}{4}$, northeast $\frac{1}{4}$ section 8 and the north $\frac{1}{2}$ of sections 17 and 18, all in town 37 north, range 14 east of third principal meridian, being 2.80 square miles.

2. Village of West Roseland: Southeast $\frac{1}{4}$ section 9 (except the west fifty feet thereof), the east $\frac{1}{4}$ of northeast $\frac{1}{4}$ of section 20, the north $\frac{1}{2}$ of section 21 and all of section 16, all of town 37 north, range 14 east of third principal meridian, being 1.80 square miles.

The city of Chicago covers now an area of 180.5 square miles, or 115,520 acres.

The following work has been performed by this department during the year, to-wit:

| Prepared for— | Number of Plans. |
|--|------------------|
| Lamp Post Ordinances | 933 |
| Lamp Post Orders | 622 |
| Lamp Post Assessments | 311 |
| Street Improvement Assessments | 607 |
| Street and Alley Opening Assessments | 68 |
| Street and Alley Opening Ordinances | 531 |
| Sewerage Assessments | 13 |
| Street Engineers' Estimates | 617 |
| Surveys | 215 |
| Sidewalk Assessments | 841 |
| Law Department | 552 |
| Miscellaneous purposes | 106 |
| Record for Street and Alley Openings | 17 |
| Total | 5,433 |

Respectfully submitted,

R. A. MANSTEIN,
Superintendent of Map Department.

REPORT
OF THE
Bureau of Sewers
CITY OF CHICAGO

BUREAU OF SEWERS.

CHICAGO, January 1, 1891.

W. H. PURDY, Esq.,

Commissioner of Public Works.

DEAR SIR:—I have the honor to herewith transmit the Annual Report of the Bureau of Sewers, for the year ending December 31, 1890, being the Fifteenth Annual Report of this bureau under the Department of Public Works, and the thirty-fifth yearly statement of work done in connection with the sewerage system.

Following is the amount of money expended in the several branches of this bureau during the year :

| | |
|--|----------------|
| For building new sewers and catch-basins. | \$ 826,718 07 |
| For cleaning sewers and catch-basins. | 107,873 84 |
| For repairing sewers and catch-basins. | 14,648 97 |
| For adjusting to grade man-hole and catch-basin covers on streets being improved | 68,739 11 |
| For house drains. | 53,768 05 |
| For appropriated salaries. | 26,658 28 |
| For office expenses | 2,967 79 |
| | <hr/> |
| | \$1,101,899 21 |

For detailed statement of work accomplished, and cost of the same, please see following table:

NEW SEWERS AND CATCH-BASINS BUILT DURING THE YEAR 1890,
AND THE COST OF SAME.

| LENGTH. | SIZE. | AVERAGE CUT. | AVERAGE COST PER FOOT. | AMOUNT. |
|---------|-----------|--------------|------------------------|---------------|
| 11,525 | 9 inches. | 10.8 | \$ 0 98 | \$ 11,294 50 |
| 119,689 | 12 " | 7.7 | 1 06 | 126,870 34 |
| 114,503 | 15 " | 8.1 | 1 20 | 137,403 60 |
| 14,016 | 18 " | 9.1 | 1 47 | 20,603 52 |
| 4,400 | 20 " | 10.8 | 1 91 | 8,404 00 |
| 57,447 | 2 foot. | 9.2 | 2 22 | 127,532 34 |
| 17,298 | 2½ " | 10.9 | 2 65 | 45,839 70 |
| 7,762 | 3 " | 8.4 | 3 50 | 27,167 00 |
| 5,942 | 3½ " | 12.3 | 3 86 | 22,936 12 |
| 2,705 | 4 " | 6.5 | 4 87 | 11,820 85 |
| 6,932 | 4½ " | 10.4 | 5 00 | 34,660 00 |
| 10,767 | 5 " | 9.5 | 5 41 + | 58,277 47 |
| 2,628 | 5½ " | 14.5 | 6 44 | 16,892 12 |
| 610 | 6 " | 10.0 | 5 71 | 3,488 10 |
| 1,650 | 7 " | 12.5 | 9 95 | 16,417 50 |
| 1,334 | 7½ " | 10.0 | 9 35 | 12,472 90 |
| 879,203 | . | . | . | \$ 682,075 06 |

| | |
|---|---------------------|
| Cost of 2,986 catch-basins built..... | \$119,440 00 |
| Cost of 6,709 cubic yards rock excavated | 23,483 00 |
| | <u>\$142,923 00</u> |
| Expenditures for sewers and catch-basins..... | \$324,998 06 |
| Add amount transferred from Sewerage Fund to Special Assessments for West Fortieth street, North avenue and Belmont avenue sewers and not yet expended..... | 51,982 37 |
| | <u>\$376,980 43</u> |
| Deduct amount of miscellaneous credits | 50,261 76 |
| | <u>\$326,718 67</u> |
| Total cost as shown by ledger | \$326,718 67 |

TOTAL NUMBER OF MAN-HOLES AND CATCH-BASINS IN PLACE
DECEMBER 31, 1890, IN THE CITY LIMITS.

| CONSTRUCTED DURING THE YEAR. | | | | Total Built in 1890. | Total Built previous to 1890. | Total in place December 31, 1890. |
|------------------------------|--------|-------|--------|----------------------------|--|--|
| DIVISIONS. | SOUTH. | WEST. | NORTH. | | | |
| Catch-basins..... | 1,878 | 1,109 | 499 | 2,986 | 28,503 | 26,489 |
| Man-holes..... | 1,508 | 597 | 499 | 2,604 | 27,886 | 29,990 |

**TOTAL COST FOR THE CONSTRUCTION OF SEWERS AND CATCH-BASINS
AND MAINTAINING SAME SINCE THE ESTABLISHMENT OF THE
SEWERAGE SYSTEM IN 1855, TO JANUARY 1, 1891.**

| Year. | Lineal feet of Sewers built. | No. of Catch- Basins built. | No. of Man- Holes built. | No. of House Drains put in. | Cost of clean- ing Sewers and Catch-Basins. | Street Inter- sections and repairs of Sewers. | Cost of Construction. |
|--|------------------------------------|--------------------------------------|-----------------------------------|--------------------------------------|--|--|--------------------------|
| Previous to 1861. | 283,586 | 1,174 | 2,102 | 2,194 | \$ 5,619 48 | No. amts. found on reports. | \$ 665,188 46 |
| 1861..... | 2,826 | 18 | 33 | 243 | 1,715 60 | \$ 2,951 76 | 3,617 31 |
| 1862..... | 15,676 | 72 | 66 | 365 | 4,897 24 | 3,024 07 | 57,036 42 |
| 1863..... | 39,605 | 192 | 204 | 536 | 5,065 40 | 2,058 11 | 169,527 38 |
| 1864..... | 25,021 | 189 | 183 | 512 | 9,417 81 | 4,597 63 | 87,221 48 |
| 1865..... | 29,948 | 223 | 168 | 1,288 | 13,818 07 | 7,493 56 | 137,643 03 |
| 1866..... | 48,127 | 327 | 271 | 3,732 | 28,445 16 | 7,778 65 | 225,564 53 |
| 1867..... | 89,681 | 418 | 555 | 3,708 | 26,540 81 | 9,581 42 | 416,730 51 |
| 1868..... | 47,841 | 480 | 293 | 3,261 | 26,954 06 | 11,287 08 | 197,152 92 |
| 1869..... | 139,705 | 771 | 923 | 3,979 | 26,015 68 | 7,527 16 | 654,141 26 |
| 1870..... | 78,166 | 626 | 468 | 5,187 | 21,464 30 | 10,954 74 | 258,664 70 |
| 1871..... | 50,716 | 277 | 357 | 3,093 | 17,415 46 | 42,557 72 | 153,395 36 |
| 1872..... | 47,342 | 245 | 341 | 1,435 | 21,484 16 | 16,975 40 | 178,255 76 |
| 1873..... | 146,702 | 897 | 1,015 | 4,691 | 31,229 27 | 29,781 97 | 450,222 90 |
| 1874..... | 222,322 | 1,054 | 1,474 | 6,292 | 36,884 57 | 21,996 72 | 587,507 38 |
| 1875..... | 120,971 | 958 | 789 | 3,365 | 32,098 23 | 28,107 40 | 342,932 89 |
| 1876..... | 15,248 | 155 | 75 | 1,172 | 29,345 41 | 19,803 29 | 79,545 28 |
| 1877..... | 64,666 | 363 | 431 | 1,822 | 35,763 33 | 16,959 44 | 291,829 63 |
| 1878..... | 88,031 | 492 | 603 | 1,544 | 25,704 37 | 19,259 49 | 37,264 97 |
| 1879..... | 145,381 | 820 | 1,043 | 2,953 | 29,283 67 | 10,649 69 | 130,840 50 |
| 1880..... | 79,128 | 271 | 554 | 4,196 | 25,561 48 | 25,068 11 | 92,544 06 |
| 1881..... | 132,076 | 548 | 917 | 4,810 | 34,512 15 | 30,967 89 | 452,310 06 |
| 1882..... | 98,515 | 792 | 725 | 5,677 | 33,969 35 | 26,618 05 | 224,450 16 |
| 1883..... | 75,364 | 835 | 497 | 5,963 | 34,749 74 | 25,140 81 | 232,064 33 |
| 1884..... | 101,547 | 751 | 654 | 5,957 | 43,678 08 | 37,893 29 | 258,020 91 |
| 1885..... | 118,647 | 796 | 854 | 6,825 | 46,532 18 | 45,333 02 | 203,188 03 |
| 1886..... | 103,193 | 734 | 723 | 7,441 | 51,110 46 | 50,707 64 | 177,647 24 |
| 1887..... | 90,584 | 756 | 605 | 8,100 | 50,264 65 | 43,789 60 | 186,496 98 |
| 1888..... | 104,903 | 816 | 674 | 8,152 | 52,422 41 | 53,782 97 | 228,567 57 |
| 1889..... | 171,023 | 1,351 | 1,190 | 4,303 | 61,503 01 | 63,459 25 | 350,234 54 |
| Annexed Districts previous to 1890, { | 993,573 | 6,102 | 8,620 | Estima | lod cost of const | truction, { | 2,614,224 75 |
| 1890..... | 379,203 | 2,986 | 2,604 | Cost of | maintenance not | known, { | 826,718 67 |
| | | | | 9,279 | 107,873 84 | 83,888 06 | |
| Totals..... | †4,149,317 | 26,489 | *30,016 | 121,570 | \$371,333 88 | \$759,489 01 | \$10,965,669 36 |

†Of this amount, 5,897 feet have been taken up and replaced by sewers of larger size, leaving in place January 1, 1891, 1,143,420 feet, or 784,737 miles.

Of the above 784,737 miles, 390,004 miles are constructed of brick, and 424,043 miles are of vitrified clay pipe.

*Of this amount, twenty-six man-holes have been abandoned, leaving in place January 1, 1891, 29,990.

LENGTH AND INTERIOR DIAMETER IN FEET, OF SEWERS IN PLACE, DECEMBER 31, 1900, IN THE DIFFERENT
WARDS OF THE PRESENT CITY LIMITS.

| WARDS. | 9 Feet. | 8 Feet. | 7 Feet. | 6 1/2 Feet. | 6 Feet. | 5 1/2 Feet. | 5 Feet. | 4 1/2 Feet. | 4 Feet. | 3 1/2 Feet. | 3 Feet. | 2 1/2 Feet. | 2 Feet. | 20 Inch. | 18 Inch. | 15 Inch. | 12 Inch. | 9 Inch. | 6 Inch. | TOTAL. |
|--------|------------|------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|-------------|-------------|-------------|-------------|------------|------------|-----------|
| 1st. | | | | | | | | | 1,926 | | 12,327 | 17,033 | 15,210 | | | 1,870 | 66,572 | | | 121,262 |
| 2d. | | | | | | | | | 670 | | 3,648 | 15,280 | 25,369 | | | 1,300 | 42,621 | | | 98,110 |
| 3d. | | | | | | | | | 1,361 | | 5,083 | 14,022 | 23,750 | | | 1,904 | 37,491 | | | 97,456 |
| 4th. | | | | | | | | | 2,410 | | 6,994 | 21,021 | 34,157 | | | 3,720 | 87,453 | | | 171,288 |
| 5th. | | | | | | | | | 3,532 | | 10,446 | 21,255 | 51,245 | | | 5,288 | 10,349 | | | 173,089 |
| 6th. | | | | | | | | | 2,900 | | 10,446 | 3,083 | 21,245 | 1,735 | | 10,100 | 30,089 | | | 204,544 |
| 7th. | | | | | | | | | 3,965 | | 4,137 | 8,083 | 51,572 | | | 8,686 | 55,713 | | | 78,514 |
| 8th. | | | | | | | | | 3,675 | | 1,853 | 2,545 | 20,086 | | | 4,408 | 38,206 | | | 75,380 |
| 9th. | | | | | | | | | 6,114 | | 1,994 | 8,971 | 15,013 | | | 15,778 | 40,387 | | | 82,654 |
| 10th. | | | | | | | | | 12,010 | | 9,745 | 6,538 | 21,561 | | | 5,672 | 48,170 | | | 118,776 |
| 11th. | | | | | | | | | 10,775 | | 14,004 | 10,725 | 77,227 | | | 6,967 | 58,151 | | | 141,276 |
| 12th. | | | | | | | | | 10,231 | | 8,004 | 7,556 | 31,970 | | | 68,232 | 109,210 | | | 230,656 |
| 13th. | | | | | | | | | 10,231 | | 333 | 6,252 | 34,431 | | | 4,230 | 43,557 | | | 162,988 |
| 14th. | | | | | | | | | 10,231 | | 658 | 5,252 | 34,431 | | | 23,221 | 43,557 | | | 151,701 |
| 15th. | | | | | | | | | 2,399 | | 4,444 | 10,439 | 35,908 | | | 330 | 38,232 | | | 164,286 |
| 16th. | | | | | | | | | 5,775 | | 2,265 | 882 | 16,779 | | | 9,371 | 25,471 | | | 70,046 |
| 17th. | | | | | | | | | 6,940 | | 4,515 | 35,974 | 35,974 | | | 21,459 | 57,433 | | | 134,770 |
| 18th. | | | | | | | | | 10,130 | | 1,023 | 22,619 | 35,065 | | | 1,014 | 42,441 | | | 79,180 |
| 19th. | | | | | | | | | 2,220 | | 3,108 | 7,333 | 22,619 | | | 1,014 | 42,441 | | | 109,558 |
| 20th. | | | | | | | | | 2,843 | | 515 | 12,010 | 16,900 | | | 13,230 | 38,453 | | | 98,513 |
| 21st. | | | | | | | | | 665 | | 2,179 | 7,625 | 22,439 | | | 5,076 | 45,631 | | | 89,279 |
| 22d. | | | | | | | | | 3,157 | | 1,902 | 3,941 | 25,833 | | | 6,515 | 34,076 | | | 78,000 |
| 23d. | | | | | | | | | 2,915 | | 4,431 | 8,431 | 25,833 | | | 1,728 | 33,146 | | | 88,001 |
| 24th. | | | | | | | | | 2,915 | | 6,431 | 1,430 | 25,833 | | | 6,431 | 34,076 | | | 78,000 |
| 25th. | | | | | | | | | 10,600 | | 8,810 | 1,350 | 21,788 | | | 14,777 | 50,230 | | | 108,001 |
| 26th. | | | | | | | | | 675 | | 3,108 | 1,350 | 21,788 | | | 3,350 | 48,368 | | | 218,447 |
| 27th. | | | | | | | | | 675 | | 3,108 | 1,350 | 21,788 | | | 3,350 | 48,368 | | | 156,146 |
| 28th. | | | | | | | | | 6,890 | | 5,330 | 770 | 270 | | | 318 | 14,777 | | | 1,607 |
| 29th. | | | | | | | | | 7,812 | | 6,538 | 4,990 | 4,567 | | | 12,322 | 14,777 | | | 98,716 |
| 30th. | | | | | | | | | 7,812 | | 6,538 | 4,990 | 4,567 | | | 12,322 | 14,777 | | | 98,716 |
| 31st. | | | | | | | | | 2,567 | | 2,451 | 3,405 | 13,756 | | | 21,904 | 40,387 | | | 208,517 |
| 32d. | | | | | | | | | 2,567 | | 2,451 | 3,405 | 13,756 | | | 21,904 | 40,387 | | | 208,517 |
| 33d. | | | | | | | | | 2,567 | | 2,451 | 3,405 | 13,756 | | | 21,904 | 40,387 | | | 208,517 |
| 34th. | | | | | | | | | 2,567 | | 2,451 | 3,405 | 13,756 | | | 21,904 | 40,387 | | | 208,517 |
| TOTAL | 15,493 | 7,765 | 5,806 | 112,756 | 3,933 | 103,563 | 166,694 | 73,792 | 3,388 | 144,564 | 1,390 | 284,239 | 12,560 | 928,108 | 8,705 | 122,977 | 613,451 | 1,414,054 | 62,727 | 4,145,430 |

SEWERS CONSTRUCTED DURING THE YEAR 1890 IN THE
WEST DIVISION.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|-------------------|------------------------------|----------------------|-------------------|--------------------|
| Albany avenue. | Kinzie | Walnut | 1 | 841 |
| Albany avenue. | Harrison | Congress | 1½ | 403 |
| Alice court. | Milwaukee avenue. | Westward | 1½ | 640 |
| Alice court. | 640 ft. W. of Milwaukee ave. | Leavitt | 1 | 273 |
| Ann | Carroll avenue | Northward | 1 | 175 |
| Ambrose | Wood | Lincoln | 1½ | 670 |
| Ambrose | Robey | Lincoln | 1 | 685 |
| Ambrose | Robey | Westward | 1 | 415 |
| Asylum place. | Elston avenue | Girard | 2 | 410 |
| Asylum place. | Girard | C. & N.-W. Ry. | 1 | 203 |
| Asylum place. | St. Hedwig's | Dudley | 1½ | 1,264 |
| Asylum place. | Dudley | C. & N.-W. Ry. | 1 | 811 |
| Armitage avenue. | California avenue | Kedzie avenue | 5 | 2,665 |
| Basil avenue. | North avenue | Bloomingtondale road | 1½ | 1,257 |
| Belmont avenue. | River | Elston avenue | 7 | 1,650 |
| Bonney avenue. | Twenty-fourth | Twenty-sixth | 1 | 1,327 |
| Bonney avenue | C., B. & Q. R. R. | Southward | 1 | 400 |
| Breslau | Hamburg | Ems. | 1 | 442 |
| Campbell avenue. | Twelfth | Fillmore | 1 | 613 |
| Campbell avenue. | Taylor | Polk | 1 | 633 |
| Carroll avenue. | Kedzie avenue | Albany avenue | 2 | 671 |
| Chicago avenue | California avenue | Grand avenue | 2½ | 885 |
| Cortez | California avenue | Richmond | 1½ | 373 |
| Commercial avenue | Clybourn avenue | Bloomingtondale road | 1½ | 630 |
| Colorado avenue. | Central Park avenue. | Trumbull avenue. | 2 | 1,090 |
| Colorado avenue. | Trumbull avenue. | Homan avenue | 1½ | 370 |
| Courtland. | Rockwell | Fairfield avenue. | 1½ | 1,010 |
| Courtland. | Fairfield avenue. | California avenue. | 1 | 303 |
| Congress | Albany avenue | Sacramento avenue. | 1 | 674 |
| Congress | California avenue | Eastward | 2 | 375 |
| Congress | Kedzie avenue | Eastward | 1 | 630 |
| Crossing | Elston avenue. | Westward | 1 | 247 |
| Davlin. | Lake | Northward | 1 | 980 |
| Dania avenue. | North avenue | Bloomingtondale road | 1½ | 1,250 |
| Francisco | Jackson | Adams | 1 | 300 |
| Francisco | Wilcox | Monroe | 1 | 190 |
| Francisco | Adams | Wilcox | 1 | 358 |
| Francisco | Twelfth | Fillmore | 1 | 576 |
| Fairfield avenue. | Courtland | Bloomingtondale road | 1 | 645 |
| Fairfield avenue. | Bloomingtondale road | North avenue. | 1½ | 1,270 |
| Fullerton avenue. | Western avenue. | California avenue | 5½ | 2,628 |
| Fullerton avenue. | California avenue | Boulevard. | 5 | 2,808 |
| Fulton. | Homan avenue. | Eastward | 1 | 670 |
| Gross avenue. | Courtland | Bloomingtondale road | 1 | 645 |
| Gross avenue. | Bloomingtondale road | North avenue. | 1½ | 1,256 |
| Hervey | Robey | Wood | 1 | 1,339 |
| Hamburg | Western avenue. | Breslau | 1 | 254 |
| Hamburg | Breslau | Leipzig | 1½ | 771 |
| Hamburg | Leipzig | Leavitt | 1 | 288 |
| Hamlin avenue. | Twenty-second | Twenty-fourth. | 2½ | 1,320 |
| Hamlin avenue | Twenty-fourth | Twenty-sixth. | 2 | 1,330 |
| Hirsch. | Oakley avenue | Eastward | ¾ | 116 |
| Hirsch. | Oakley avenue. | Westward | 1 | 100 |
| Homan avenue | North avenue. | Dickey | 2 | 667 |
| Hoynes avenue. | Armitage avenue. | Frankfort | 2½ | 800 |
| Hoynes avenue. | Frankfort | Asylum place. | 2 | 503 |

WEST DIVISION—CONTINUED.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|------------------------------|----------------------------|------------------------|-------------------|--------------------|
| Huron | Oakley avenue | Westward | 1 | 525 |
| West Side Humboldt boulevard | North avenue | Armitage avenue | 1½ | 2,555 |
| East Side Humboldt boulevard | North avenue | Armitage avenue | 1½ | 2,584 |
| Humboldt | North avenue | Wabansia avenue | 1½ | 675 |
| Jane | Hoyne avenue | Leavitt | 1 | 665 |
| Leavitt | Division | Jane | 2 | 293 |
| Lawndale avenue | Ohio | Huron | 1½ | 668 |
| Millard avenue | Twenty-sixth | Twenty-seventh | 1 | 675 |
| Monroe | Central Park avenue | St. Louis avenue | 2 | 625 |
| Monroe | St. Louis avenue | Homan avenue | 1 | 717 |
| North avenue | Kedzie avenue | Homan avenue | 4½ | 1,350 |
| Ogden avenue | Homan avenue | Kedzie avenue | 1½ | 1,450 |
| Ohio | Kedzie avenue | St. Louis avenue | 4½ | 1,995 |
| Polk | California avenue | Washtenaw avenue | 1½ | 663 |
| Potomac avenue | Western avenue | Maplewood avenue | 2 | 642 |
| Potomac avenue | Maplewood avenue | Rockwell | 1½ | 385 |
| Richmond | Chicago avenue | Augusta | 1½ | 1,326 |
| Richmond | Division | Augusta | 1 | 1,310 |
| Rockwell | Armitage avenue | Courtland | 2 | 684 |
| Rockwell | Courtland | Bloomingtondale road | 1½ | 651 |
| Sacramento avenue | Congress | Northward | 1 | 293 |
| Seymour | Chicago avenue | Superior | 1½ | 367 |
| Sixteenth | California avenue | Washtenaw avenue | 2 | 668 |
| Sixteenth | Washtenaw avenue | Rockwell | 1½ | 672 |
| Sixteenth | Western avenue | Rockwell | 1½ | 1,150 |
| Spaulding avenue | Ogden avenue | Nineteenth | 1 | 560 |
| St. Louis avenue | Ohio | Boulevard | 2 | 795 |
| St. Louis avenue | Boulevard | Kinzie | 1½ | 485 |
| St. Louis avenue | Ohio | Huron | 2½ | 668 |
| Talman avenue | Ogden avenue | Fifteenth | 1 | 465 |
| Talman avenue | Ogden avenue | Northward | 1½ | 446 |
| Talman avenue | 446 ft. N. of Ogden avenue | North to old work | 1 | 466 |
| Thomas | California avenue | Richmond | 1½ | 373 |
| Troy | Colorado avenue | Southward | 1 | 167 |
| Troy | Fillmore | Southward | 1 | 136 |
| Turner avenue | Ogden avenue | Nineteenth | 1 | 412 |
| Twelfth | Central Park avenue | St. Louis avenue | 2 | 666 |
| Twelfth | St. Louis avenue | Homan avenue | 1½ | 666 |
| Twelfth | Central Park avenue | Douglas Park boulevard | 2 | 1,332 |
| Twelfth | Kedzie avenue | Spaulding avenue | 2 | 666 |
| Twelfth | Spaulding avenue | Homan avenue | 1½ | 666 |
| Twenty-fifth | Lawndale avenue | Bonney avenue | 1½ | 300 |
| Twenty-sixth | Lawndale avenue | Bonney avenue | 1½ | 341 |
| Washtenaw avenue | Armitage avenue | Courtland | 2 | 683 |
| Washtenaw avenue | Courtland | Bloomingtondale road | ..... | 648 |
| TOTAL | | | | 77,703 |

SEWERS CONSTRUCTED DURING THE YEAR 1890 IN THE
SOUTH DIVISION.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|-----------------------------------|----------------------------|---------------------------------------|-------------------|--------------------|
| Alley E. of Winter.... | Seventy-eighth | Alley north of Seventy-ninth.... | $\frac{3}{4}$ | 496 |
| Alley E. of Emerald ave | Seventy-eighth..... | Alley north of Seventy-ninth.... | $\frac{3}{4}$ | 635 |
| Alley W. of Emerald ave | Seventy-eighth..... | Alley north of Seventy-ninth.... | $\frac{3}{4}$ | 466 |
| Alley E. of Grand boul'd | Forty-fifth..... | South..... | 1 | 125 |
| Alley West of Woodlawn avenue | Sixty-fifth..... | Sixty-sixth..... | $\frac{3}{4}$ | 600 |
| Alleys in University Grounds..... | ..... | ..... | $1\frac{1}{4}$ | 300 |
| Alleys in University Grounds..... | ..... | ..... | 1 | 1,487 |
| Alley N. of Fifty-fifth..... | Ashland avenue..... | Lafin..... | $1\frac{1}{4}$ | 658 |
| Alley S. of Fifty-fifth..... | Ashland avenue..... | Hermitage avenue..... | $1\frac{1}{4}$ | 995 |
| Alley S. of Fifty-fifth..... | Hermitage avenue..... | Wood..... | 1 | 340 |
| Alley N. of Fifty-fifth..... | Halsted..... | Winter..... | 2 | 670 |
| Alley N. of Fifty-fifth..... | Winter..... | Sherman..... | $1\frac{1}{4}$ | 330 |
| Alley N. of Fifty-fifth..... | Sherman..... | Wallace..... | 1 | 293 |
| Alley N. of Fifty-fifth..... | Green..... | Peoria..... | $1\frac{1}{4}$ | 300 |
| Alley N. of Fifty-fifth..... | Peoria..... | Morgan..... | 1 | 625 |
| Alley W. of Winter..... | Sixty-seventh..... | Sixty-eighth..... | 1 | 585 |
| Alley S. of Sixtieth..... | Park End avenue..... | Vernon avenue..... | 2 | 1,625 |
| Alley S. of Sixtieth..... | Vernon avenue..... | West..... | $1\frac{1}{4}$ | 160 |
| Alley W. of Vernon ave | Alley S. of Sixtieth..... | Sixty-first..... | $1\frac{1}{4}$ | 433 |
| Alley S. of Fifty-fifth..... | Halsted..... | Green..... | $1\frac{1}{4}$ | 360 |
| Alley E. of Halsted..... | Sixty-seventh..... | Sixty-ninth..... | 1 | 1,227 |
| Alley W. of Grand boul'd | Thirty-ninth..... | Fortieth..... | 1 | 587 |
| Alley W. of Grand boul'd | Fortieth..... | Forty-first..... | $1\frac{1}{4}$ | 696 |
| Alley E. of Drexel ave | Forty-third..... | Forty-fourth..... | 1 | 680 |
| Alley S. of Fifty-fifth..... | Tracy..... | West..... | 1 | 129 |
| Alley E. of Ellis..... | Forty-first..... | North..... | 1 | 115 |
| Alley E. of Ellis..... | And N. of Forty-first..... | ..... | $\frac{3}{4}$ | 129 |
| Alley S. of Sixtieth..... | Woodlawn avenue..... | Lexington avenue..... | $\frac{3}{4}$ | 403 |
| Alley W. of Halsted..... | Seventy-seventh..... | 514 feet south of Seventy-eighth..... | $\frac{3}{4}$ | 1,178 |
| Alley W. of Green..... | Seventy-seventh..... | 514 feet south of Seventy-eighth..... | $\frac{3}{4}$ | 1,178 |
| Alley W. of Peoria..... | Seventy-seventh..... | 514 feet south of Seventy-eighth..... | $\frac{3}{4}$ | 1,178 |
| Alley W. of Sangamon..... | Seventy-seventh..... | 514 feet south of Seventy-eighth..... | $\frac{3}{4}$ | 1,178 |
| Alley N. of Seventy-ninth..... | Halsted..... | Morgan..... | $\frac{3}{4}$ | 1,003 |
| Alley E. of Emerald ave | Sixty-eighth..... | Sixty-ninth..... | $1\frac{1}{4}$ | 632 |
| Atlantic..... | Fifty-second..... | 130 feet north of Fifty-fifth..... | $1\frac{1}{4}$ | 1,620 |
| Atlantic..... | Fifty-second..... | South..... | $1\frac{1}{4}$ | 217 |
| Archer avenue..... | Western avenue..... | Southwest..... | 2 | 279 |
| Ashland avenue..... | Fifty-fifth..... | Fifty-ninth..... | $4\frac{1}{2}$ | 2,529 |
| Bonfield..... | 108 ft. S. of Lyman..... | Southward..... | 1 | 518 |
| Bonfield..... | Thirty-first..... | Northward..... | $1\frac{1}{4}$ | 341 |
| Butterfield..... | Twenty-third..... | Twenty-fifth..... | 1 | 1,282 |
| Boulevard place..... | Vincennes avenue..... | West..... | $1\frac{1}{4}$ | 300 |
| Buffalo avenue..... | Ninety-second..... | Ninety-first..... | $1\frac{1}{4}$ | 490 |
| Buffalo avenue..... | Ninetieth..... | Eighty-ninth..... | 2 | 665 |
| Buffalo avenue..... | Eighty-eighth..... | Eighty-ninth..... | $1\frac{1}{4}$ | 665 |
| Buffalo avenue..... | Eighty-seventh..... | Eighty-ninth..... | 1 | 656 |
| Buffalo avenue..... | Ninetieth..... | Ninety-first..... | $1\frac{1}{4}$ | 487 |
| Calumet avenue..... | Thirty-fifth..... | Southward..... | $1\frac{1}{4}$ | 658 |
| Cook..... | Forty-seventh..... | Forty-eighth..... | $1\frac{1}{2}$ | 660 |
| Cook..... | Forty-eighth..... | Forty-ninth..... | $1\frac{1}{4}$ | 638 |
| Champlain avenue..... | Alley S. of Sixtieth..... | Sixty-first..... | $1\frac{1}{4}$ | 429 |
| Calumet avenue..... | Forty-seventh..... | Forty-eighth..... | 1 | 634 |
| Calumet avenue..... | Forty-eighth..... | Forty-ninth..... | $1\frac{1}{4}$ | 662 |
| Calumet avenue..... | Forty-ninth..... | Fifty-first..... | 2 | 1,329 |
| Center avenue..... | Fifty-fifth..... | Fifty-seventh..... | $3\frac{1}{2}$ | 1,165 |
| Center avenue..... | Fifty-seventh..... | Fifty-ninth..... | 3 | 1,345 |

SOUTH DIVISION—CONTINUED.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|------------------------|-------------------------|----------------------------------|-------------------|--------------------|
| Commercial avenue... | Eighty-seventh | Eighty-eighth | 1½ | 645 |
| Commercial avenue... | Eighty-eighth | Ninetieth | 2 | 1,326 |
| Commercial avenue... | Ninetieth | Ninety-first | 1½ | 494 |
| Dryer... | Forty-sixth | Forty-seventh | 1½ | 644 |
| Dryer... | Forty-seventh | Forty-eighth | 1½ | 666 |
| Dryer... | Forty-eighth | Forty-ninth | 1½ | 633 |
| Dickey... | Sixty-ninth | Seventy-first | 1½ | 1,258 |
| Douglas avenue... | Archer avenue | Western avenue | 5 | 1,948 |
| Drexel avenue... | Fifty-sixth | Fifty-seventh | 2 | 638 |
| Drexel avenue... | Fifty-seventh | Fifty-eighth | 1½ | 665 |
| Drexel avenue... | Fifty-eighth | Fifty-ninth | 1 | 634 |
| Emerald avenue... | Sixty-ninth | Northward | ¾ | 520 |
| Emerald avenue... | Sixty-seventh | Southward | ¾ | 520 |
| Emerald avenue... | Alley S. of Fifty-fifth | Fifty-sixth | 1 | 378 |
| Emerald avenue... | Thirty-ninth | Fortieth | 1 | 577 |
| Emerald avenue... | Sixty-ninth | Seventy-first | 1½ | 1,258 |
| Erie avenue... | Eighty-ninth | Ninetieth | 3 | 707 |
| Egan avenue... | Halsted | Wallace | 7½ | 1,334 |
| Egan avenue... | Wallace | Butler | 6 | 610 |
| Egan avenue... | Butler | Eastward | 2½ | 753 |
| Egan avenue... | Stewart | Wentworth avenue | 2 | 1,148 |
| Englewood avenue... | Halsted | Eastward | 1½ | 525 |
| Englewood avenue... | 525 ft. E. of Halsted | Wallace | 1 | 787 |
| Exchange avenue... | Eighty-seventh | Eighty-eighth | 1½ | 625 |
| Exchange avenue... | Eighty-eighth | Ninetieth | 2 | 1,380 |
| Exchange avenue... | Ninetieth | Ninety-first | 1½ | 494 |
| Eighty-ninth... | Erie avenue | Commercial avenue | 3 | 723 |
| Eighty-ninth... | Commercial avenue | Muskegon avenue | 2½ | 1,101 |
| Eighty-ninth... | Muskegon avenue | Marquette avenue | 2 | 769 |
| Forrestville avenue... | Forty-third | Forty-fourth | 1 | 510 |
| Fortieth... | Ashland avenue | Eastward | 1½ | 1,300 |
| Forty-third... | State | 222 feet east of Michigan avenue | 1 | 1,092 |
| Forty-third... | Indiana avenue | Grand boulevard | 1 | 1,011 |
| Forty-third... | Ellis avenue | I. C. R. R. | 1 | 881 |
| Forty-fourth... | Cottage Grove avenue | Champlain avenue | 1 | 633 |
| Forty-fourth... | St. Lawrence avenue | Westward | 1½ | 380 |
| Forty-fourth... | Vincennes avenue | Eastward | 1 | 174 |
| Forty-seventh... | Halsted | Morgan | 2½ | 1,315 |
| Forty-seventh... | Morgan | Aberdeen | 2 | 665 |
| Forty-seventh... | Aberdeen | West | 1 | 375 |
| Forty-seventh court... | Cottage Grove avenue | Eastward | 1 | 310 |
| Forty-ninth... | Halsted | Winter | 1½ | 691 |
| Fifty-first... | Halsted | Morgan | 2 | 1,342 |
| Fifty-first... | Halsted | Winter | 2½ | 675 |
| Fifty-first... | Winter | Wallace | 2 | 620 |
| Fifty-first court... | Halsted | Peoria | 1½ | 670 |
| Fifty-first court... | Peoria | Morgan | 1 | 615 |
| Fifty-first... | Ashland avenue | Bishop | 1½ | 995 |
| Fifty-first... | Bishop | Loomis | 1½ | 328 |
| Fifty-first... | Loomis | Ada | 1 | 350 |
| Fifty-first... | Ada | Throop | 1½ | 330 |
| Fifty-first... | Throop | Center avenue | 1½ | 670 |
| Fifty-third... | Halsted | Morgan | 2 | 1,383 |
| Fifty-third... | Drexel avenue | Cottage Grove avenue | 1 | 520 |
| Fifty-third... | Halsted | Winter | 2½ | 688 |
| Fifty-fourth... | Kimbark avenue | Monroe avenue | 1 | 425 |

SOUTH DIVISION—CONTINUED.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|--------------------|-------------------------|-----------------------------|-------------------|--------------------|
| Fifty-fourth | Halsted | Peoria | 1½ | 665 |
| Fifty-fourth | Peoria | Morgan | 1½ | 655 |
| Fifty-fourth | Ashland avenue | Justine | 2 | 330 |
| Fifty-fifth | Tracy avenue | Eastward | 1½ | 52 |
| Fifty-sixth | Ashland avenue | Hermitage avenue | 2 | 1,000 |
| Fifty-sixth | Halsted | Sangamon | 1½ | 994 |
| Fifty-sixth | Sangamon | Morgan | 1½ | 386 |
| Fifty-seventh | Ashland avenue | Hermitage avenue | 2 | 1,000 |
| Fifty-seventh | Halsted | Sangamon | 2 | 1,006 |
| Fifty-seventh | Morgan | Sangamon | 1½ | 338 |
| Fifty-eighth | Ashland avenue | Hermitage avenue | 2 | 998 |
| Fifty-eighth | Wallace | Wright | 1½ | 645 |
| Fifty-eighth | Wright | Stewart avenue | 1 | 634 |
| Fifty-ninth | Halsted | Morgan | 2 | 1,380 |
| Fifty-ninth | Morgan | Carpenter | 1½ | 338 |
| Fifty-ninth | Center avenue | Aberdeen | 1½ | 665 |
| Fifty-ninth | Aberdeen | Carpenter | 1 | 340 |
| Fifty-ninth | Dickey avenue | Stewart avenue | 1½ | 315 |
| Garfield boulevard | Wentworth avenue | C. B. & Q. R. R. | 1 | 485 |
| Garfield boulevard | Wentworth avenue | School | 1½ | 650 |
| Garfield boulevard | School | Stewart avenue | 1 | 682 |
| Greenwood avenue | Fifty-fourth place | Fifty-sixth | 2 | 1,228 |
| Greenwood avenue | Sixtieth | Sixty-third | 1 | 1,773 |
| Grant place | Sixty-ninth | Seventieth | 1 | 600 |
| Green | Alley S. of Fifty-fifth | Fifty-sixth | 1½ | 380 |
| Hermitage avenue | Alley S. of Fifty-fifth | Fifty-eighth | 1 | 1,670 |
| Houston | Ninety-third | Northward | 1½ | 480 |
| Honore | Sixty-seventh | Sixty-eighth | 1 | 627 |
| Honore | Sixty-eighth | Sixty-ninth | 1½ | 625 |
| Honore | Sixty-ninth | Seventy-first | 1½ | 1,255 |
| Honore | Seventy-fourth | Seventy-sixth | 1 | 1,283 |
| Halsted | Sixty-ninth | Seventy-third | 3½ | 2,657 |
| Halsted | Seventy-third | Southward | 2½ | 1,578 |
| Harbour avenue | The Strand | Westward | 1½ | 354 |
| Indiana avenue | Fifty-fourth | Fifty-fifth | 2 | 635 |
| Indiana avenue | Fifty-fourth | Fifty-third | 1 | 779 |
| Ingleside avenue | Fifty-fifth | Fifty-sixth | 2 | 665 |
| Jackson avenue | Fifty-fifth | Fifty-seventh | 2 | 1,185 |
| Jackson avenue | Fifty-seventh | Fifty-eighth | 1½ | 825 |
| Jackson avenue | Fifty-eighth | Fifty-ninth | 1 | 630 |
| Justine | Alley N. of Fifty-fifth | Alley north of Fifty-fourth | 1 | 904 |
| Justine | Forty seventh | Forty-eighth | 1½ | 662 |
| Justine | Forty-eighth | Forty-ninth | 1½ | 633 |
| Keeley | Lyman | Southward | 1 | 204 |
| Lake avenue | Fifty-sixth | Fifty-seventh | 1½ | 650 |
| Langley avenue | Forty-third | Forty-fourth | 1 | 536 |
| Langley avenue | Forty-fourth | Forty-fifth | 1½ | 658 |
| Layton | Wallace | Wright | 1½ | 664 |
| Layton | Wright | Eastward | 1 | 360 |
| Lafayette avenue | Seventy-first | Seventy-third | 1 | 1,260 |
| Lafayette avenue | Seventy-third | Seventy-fourth | 1 | 625 |
| Lincoln avenue | Sixty-third | Sixty-fifth | 1 | 1,375 |
| Marshfield avenue | Alley S. of Fifty-fifth | Fifty-eighth | 1 | 1,670 |
| Mattison | Halsted | 100 feet west of Winter | 1 | 534 |
| Mattison | Halsted | Westward | 1 | 379 |
| Madison avenue | Sixty-third | Sixty-sixth | 1 | 2,158 |

SEWERAGE DEPARTMENT.

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SOUTH DIVISION—CONTINUED.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|----------------------|----------------------------|-----------------------------|-------------------|--------------------|
| Michigan avenue | Forty-seventh | Forty-eighth | 1½ | 711 |
| Michigan avenue | Forty-eighth | Forty-ninth | 1 | 678 |
| Michigan avenue | Forty-ninth | Fiftieth | 1½ | 668 |
| Michigan avenue | Fiftieth | Fifty-first | 2 | 624 |
| Michigan avenue | Fifty-second | Fifty-third | 1 | 517 |
| Michigan avenue | Fifty-third | Fifty-fourth | 1½ | 587 |
| Michigan avenue | Fifty-fourth | Fifty-fifth | 2 | 638 |
| Napoleon place | Shields avenue | Stewart avenue | 1 | 278 |
| New Archer avenue | Wallace | Westward | 1 | 488 |
| New Archer avenue | Wallace | Eastward | 1 | 218 |
| New Archer avenue | Butler | Eastward | 8 | 408 |
| New Archer avenue | Butler | Westward | 1 | 138 |
| N. Normal Parkway | Wright | Stewart avenue | 1 | 659 |
| Ninetieth | The Strand | Mackinaw avenue | 4½ | 758 |
| Ninetieth | Mackinaw avenue | Superior | 4 | 751 |
| Ninetieth | Superior | Erie | 8½ | 786 |
| Ninety-third | South Chicago avenue | Houston | 1½ | 277 |
| Ninety-fifth | Calumet River | South Chicago avenue | 5 | 625 |
| Ontario avenue | South Chicago avenue | Northward | 2 | 493 |
| Ontario avenue | 498 ft. N. So. Chicago ave | Ninety-third | 1½ | 507 |
| Ontario avenue | Eighty-ninth | Ninetieth | 2 | 677 |
| Ontario | Ninetieth | Alley north of Ninety-third | 1½ | 1,848 |
| Paulina | Alley S. of Fifty-fifth | Fifty-eighth | 1 | 1,670 |
| Paulina | Thirty-seventh | Thirty-eighth | 2 | 672 |
| Prairie avenue | Forty-third | Forty-fifth | 2 | 1,276 |
| Park End avenue | Alley S. of Sixtieth | Sixty-first | 1½ | 423 |
| Perry avenue | Seventy-second | Seventy-third | 2 | 662 |
| Perry avenue | Seventy-third | Seventy-fourth | 1 | 625 |
| Rhodes avenue | Alley S. of Sixtieth | Sixty-first | 1½ | 427 |
| Sangamon | Alley S. of Fifty-fifth | Fifty-seventh | 1 | 1,018 |
| Sherman | Sixty-ninth | Seventy-first | 1½ | 1,253 |
| Sherman | Alley S. of Fifty-fifth | Fifty-sixth | 1 | 877 |
| Shields avenue | Thirty-second | Thirty-third | 1½ | 676 |
| Stewart avenue | Thirty-first | Whitehouse place | 1½ | 552 |
| Stewart avenue | Whitehouse place | Swift place | 1½ | 534 |
| Stewart avenue | Swift place | Napoleon | 1 | 525 |
| Stewart avenue | Thirty-first | Thirty-second | 1½ | 678 |
| Stewart avenue | Thirty-second | Thirty-fourth | 1½ | 1,340 |
| Stewart avenue | Thirty-fourth | Thirty-fifth | 1½ | 661 |
| Stewart avenue | Thirty-fifth | Thirty-sixth | 1½ | 662 |
| Stewart avenue | Thirty-sixth | Thirty-seventh | 1½ | 548 |
| Stewart avenue | Thirty-seventh | Thirty-eighth | 1½ | 670 |
| Stewart avenue | Thirty-eighth | Thirty-ninth | 1½ | 637 |
| Stewart avenue | Sixty-ninth | Seventy-first | 1½ | 1,258 |
| State avenue | Sixty-fourth | Sixty-fifth | 1½ | 451 |
| State avenue | Sixty-fifth | Sixty-eighth | 2 | 2,000 |
| South Chicago avenue | Seventy-fifth | Commercial avenue | 4 | 1,954 |
| South Chicago avenue | Commercial avenue | Manistee avenue | 3 | 2,098 |
| South Chicago avenue | Manistee avenue | Kingston avenue | 2½ | 2,304 |
| South Chicago avenue | Kingston avenue | Eighty-seventh | 2 | 1,093 |
| South Park avenue | Fifty-first | Fifty-second | 1½ | 658 |
| South Park avenue | Fifty-second | Fifty-fourth | 1 | 1,339 |
| South Park avenue | Fifty-fourth | Fifty-fifth | 1½ | 625 |
| South Park avenue | Fifty-fifth | Fifty-ninth | 3 | 2,492 |
| South Park avenue | Fifty-ninth | Sixtieth | 2 | 651 |
| Sixtieth | South Park avenue | Vernon avenue | 2 | 348 |

SOUTH DIVISION—CONTINUED.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|-----------------------|---|------------------------------------|-------------------|--------------------|
| Sixtieth..... | Stony Island avenue..... | Westward..... | 1½ | 845 |
| Sixtieth..... | 345 feet W. of Stony Island avenue..... | Westward..... | 1 | 717 |
| Sixtieth..... | 1,062 feet W. of Stony Island avenue..... | Westward..... | ¾ | 915 |
| Sixty-first..... | Wallace..... | Winter..... | 1 | 640 |
| Sixty-second..... | Halsted..... | Eastward..... | 1½ | 560 |
| Sixty-second..... | 580 feet E. of Halsted..... | Eastward..... | 1 | 105 |
| Sixty-third..... | Halsted..... | Ninety feet west of Winter..... | 1 | 429 |
| Sixty-fourth..... | Halsted..... | Winter..... | 1½ | 533 |
| Sixty-fourth..... | Winter..... | Sherman..... | 1 | 498 |
| Sixty-fifth..... | Halsted..... | Winter..... | 3 | 537 |
| Sixty-fifth..... | Winter..... | Sherman..... | 1½ | 499 |
| Sixty-fifth..... | Woodlawn..... | Westward..... | ¾ | 165 |
| Sixty-seventh..... | Halsted..... | Aberdeen..... | 2½ | 2,000 |
| Sixty-seventh..... | Aberdeen..... | Throop..... | 2 | 1,325 |
| Sixty-seventh..... | Throop..... | Loomis..... | 1½ | 655 |
| Seventy-second..... | Lafayette..... | Eastward..... | ¾ | 250 |
| Seventy-second..... | Perry..... | Eastward..... | ¾ | 261 |
| Seventy-third..... | Perry..... | Yale..... | 1½ | 775 |
| Seventy-fourth..... | Wright..... | Honore..... | 1½ | 418 |
| Seventy-seventh..... | Halsted..... | Morgan..... | 1½ | 1,380 |
| Seventy-eighth..... | Halsted..... | Morgan..... | 1½ | 1,316 |
| The Strand..... | Calumet river..... | Ninetieth..... | 5 | 1,051 |
| The Strand..... | Ninetieth..... | North of Eighty-ninth..... | 1½ | 999 |
| Tracy avenue..... | Fifty-fifth..... | Fifty-sixth court..... | 1 | 802 |
| Twenty-seventh..... | Lime..... | Quarry..... | 1½ | 616 |
| Thirty-fourth..... | Rhodes avenue..... | East..... | 2 | 167 |
| Thirty-ninth..... | Langley avenue..... | Westward..... | 1 | 782 |
| Vernon avenue..... | Sixtieth..... | Alley south of Sixtieth..... | 2 | 179 |
| Vernon avenue..... | Alley S. of Sixtieth..... | Sixty-first..... | 1½ | 496 |
| Vincennes avenue..... | Alley S. of Sixtieth..... | Sixty-first..... | 1½ | 429 |
| Vincennes avenue..... | Forty-seventh..... | Fifty-first..... | 2 | 2,321 |
| Vincennes avenue..... | Sixty-eighth..... | Sixty-ninth..... | 2½ | 735 |
| Wharton avenue..... | Fifty-fifth..... | Fifty-fourth place..... | 1½ | 541 |
| Wharton avenue..... | Fifty-fourth place..... | Fifty-fourth..... | 1 | 536 |
| Western avenue..... | Archer avenue..... | Southward..... | 1½ | 685 |
| Western avenue..... | Illinois and Michigan canal..... | Archer avenue..... | 1½ | 3,100 |
| Winter..... | Alley S. of Fifty-fifth..... | Fifty-sixth..... | 1 | 382 |
| Winter..... | Forty-eighth..... | Alley south of Forty-seventh..... | 1 | 516 |
| Winter..... | Forty-eighth..... | Forty-ninth..... | 1½ | 675 |
| Winter..... | Fiftieth..... | Alley east of Forty-ninth..... | 1 | 511 |
| Winter..... | Fiftieth..... | Fifty-first..... | 1½ | 669 |
| Winter..... | Fifty-first..... | 620 feet south of Fifty-third..... | 1½ | 1,995 |
| Winter..... | 620 feet S. of Fifty-third..... | Southward..... | 1 | 536 |
| Winter..... | Sixty-fifth..... | Sixty-seventh..... | 1½ | 1,194 |
| Winter..... | Sixty-third..... | Sixty-fifth..... | 1 | 1,084 |
| Winter..... | Sixty-ninth..... | Seventy-first..... | 1½ | 1,253 |
| Wright..... | Sixty-seventh..... | North Normal parkway..... | 1 | 400 |
| Wright..... | N. Normal Parkway..... | Sixty-ninth..... | 1½ | 861 |
| Wright..... | Sixty-ninth..... | Seventy-first..... | 1½ | 1,258 |
| Wright..... | Seventy-third..... | Seventy-sixth..... | 1½ | 1,950 |
| Yale..... | Seventy-third..... | Seventy-fourth..... | 1 | 679 |
| TOTAL..... | | | | 316,144 |

SEWERS CONSTRUCTED DURING THE YEAR 1890 IN THE
NORTH DIVISION.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|-------------------------|-------------------------------|------------------------------------|-------------------|--------------------|
| Alley W. of Clark..... | Fullerton ave..... | Northward..... | ¾ | 284 |
| Addison avenue..... | Lake Michigan..... | Pine Grove avenue..... | 2 | 745 |
| Addison avenue..... | Halsted..... | Rokeby..... | 1½ | 620 |
| Addison avenue..... | Rokeby..... | Sheffield avenue..... | 1½ | 660 |
| Addison avenue..... | Clark..... | Sheffield avenue..... | 1 | 558 |
| Addison avenue..... | Pine Grove avenue..... | Westward..... | 1 | 895 |
| Argyle..... | Winthrop avenue..... | Westward..... | 1 | 377 |
| Ashland avenue..... | Graceland avenue..... | Belle Plaine avenue..... | 1½ | 675 |
| Ashland avenue..... | Belle Plaine avenue..... | Cosgrove avenue..... | 1 | 1,330 |
| Ashland avenue..... | Sulzer..... | Cosgrove avenue..... | 1½ | 658 |
| Baxter..... | Belmont avenue..... | School..... | 1½ | 683 |
| Baxter..... | School..... | Roscoe..... | 1 | 648 |
| Bradley..... | Rokeby..... | Eastward..... | 1 | 504 |
| Belmont avenue..... | Oak place..... | Westward..... | 1 | 268 |
| Burton place..... | Astor..... | Eastward..... | 1½ | 160 |
| Burton place..... | 116 feet E. of Astor..... | Eastward..... | 1 | 108 |
| Buena Park terrace..... | Evanston avenue..... | Eastward..... | 1 | 450 |
| Byron..... | Sheffield avenue..... | Eastward..... | 1 | 170 |
| Clark..... | Frederick..... | Southward..... | 1 | 515 |
| Clark..... | Frederick..... | Northward..... | 1 | 577 |
| Clarence avenue..... | Grace..... | Northward..... | 1 | 300 |
| Clarence avenue..... | Byron..... | Southward..... | 1 | 268 |
| Clarence avenue..... | Grace..... | Nellie avenue..... | 1½ | 765 |
| Cornelia..... | Racine avenue..... | Eastward..... | 1 | 920 |
| Cornelia..... | Elaine place..... | Eastward..... | 1 | 363 |
| Cornelia..... | Elaine place..... | Westward..... | 1 | 277 |
| Cornelia..... | Lake Michigan..... | Evanston avenue..... | 1 | 970 |
| Eastwood avenue..... | Sheffield avenue..... | Hazel..... | 1½ | 612 |
| Eastwood avenue..... | Hazel..... | Halsted..... | 1 | 651 |
| Elaine place..... | Roscoe..... | Cornelia..... | 1½ | 645 |
| Evanston avenue..... | N. Fifty-ninth..... | Bryn Maur avenue..... | 1½ | 2,630 |
| Fletcher..... | Southport ave..... | Eastward..... | 1 | 660 |
| Fletcher..... | Racine avenue..... | Westward..... | 1 | 596 |
| Fletcher..... | 420 feet W. of State..... | Westward..... | 1 | 30 |
| Frederick..... | W. line of Clark..... | Eastward..... | 1½ | 52 |
| Fullerton avenue..... | N. Park avenue..... | Lake View avenue..... | 1½ | 690 |
| Fullerton avenue..... | Lake View avenue..... | Westward..... | 1 | 210 |
| Fullerton avenue..... | Clark..... | Eastward..... | 1 | 70 |
| Garfield avenue..... | Lawrence avenue..... | Grant place..... | 1½ | 665 |
| Garfield avenue..... | Grant place..... | Clay..... | 1 | 660 |
| Goodwin..... | Thorndale avenue..... | Southward..... | 1½ | 505 |
| Goodwin..... | Ardmour..... | Northward..... | 1 | 492 |
| Goodwin..... | Grand avenue..... | Thorndale avenue..... | 1 | 1,650 |
| Goodwin..... | Lawrence avenue..... | Ainslie..... | 1½ | 900 |
| Gordon terrace..... | Halsted..... | Eastward..... | 1 | 537 |
| Graceland avenue..... | Southport avenue..... | Clark..... | 2 | 570 |
| Graceland avenue..... | Alexander..... | Westward..... | 1½ | 886 |
| Grand avenue..... | Lake Michigan..... | Evanston avenue..... | 5 | 1,670 |
| Grand avenue..... | Evanston avenue..... | Westward..... | 4½ | 300 |
| Halsted..... | Graceland avenue..... | Buena avenue..... | 2 | 1,436 |
| Halsted..... | Buena avenue..... | Northward..... | 1½ | 803 |
| Halsted..... | 803 feet N. of Buena ave..... | Sulzer..... | 1 | 480 |
| Halsted..... | Graceland avenue..... | Evanston avenue..... | 1 | 416 |
| Herndon..... | Roscoe..... | Alley north of Belmont avenue..... | 1 | 1,160 |
| Hoynes avenue..... | Belmont avenue..... | Noble avenue..... | 1½ | 635 |
| Hoynes avenue..... | Noble avenue..... | Clybourn..... | 1 | 1,290 |

NORTH DIVISION—CONTINUED.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|------------------------|------------------------------|--------------------------|-------------------|--------------------|
| Lawrence avenue..... | Ashland avenue..... | Clark..... | 2 | 568 |
| Lawrence avenue..... | Sheffield avenue..... | Evanston avenue..... | 3½ | 1,290 |
| Lawrence avenue..... | Evanston ave..... | Westward..... | 2½ | 665 |
| Lawrence avenue..... | 665 feet W. of Evanston ave. | Westward..... | 2 | 665 |
| Lawrence avenue..... | 1830 ft. W. of Evanston ave. | Westward..... | 1½ | 585 |
| Lawrence avenue..... | Robey..... | Garfield avenue..... | 2 | 340 |
| Lake View avenue..... | Fullerton avenue..... | Northward..... | 1 | 450 |
| Lincoln avenue..... | Graceland avenue..... | Berteau avenue..... | 2½ | 1,490 |
| Lincoln avenue..... | Bertram avenue..... | Sulzer..... | 2 | 1,520 |
| Lincoln avenue..... | Addison avenue..... | Northward..... | 2 | 1,510 |
| Lincoln avenue..... | Graceland avenue..... | Southward..... | 1½ | 1,465 |
| Lill avenue..... | Perry..... | Eastward..... | 1 | 480 |
| Marianna..... | Lewis..... | Herndon..... | 1 | 288 |
| Melrose..... | Southport avenue..... | Perry avenue..... | 1 | 664 |
| Melrose..... | Southport avenue..... | Herndon..... | 1½ | 673 |
| Melrose..... | Racine avenue..... | Westward..... | 1 | 435 |
| Nelson..... | Blucher..... | Eastward..... | 1 | 286 |
| Otto..... | Southport avenue..... | Herndon..... | 1½ | 662 |
| Otto..... | Herndon..... | Eastward..... | 1 | 482 |
| Oakdale avenue..... | Halsted..... | Sheffield avenue..... | 1 | 1,275 |
| Paulina..... | Graceland avenue..... | Belle Plaine avenue..... | 1½ | 677 |
| Paulina..... | Belle Plaine avenue..... | Berteau avenue..... | 1 | 660 |
| Pine Grove avenue..... | Grace..... | Southward..... | 1½ | 880 |
| Pine Grove avenue..... | Addison avenue..... | Cornelia..... | 1½ | 745 |
| Pine Grove avenue..... | Addison avenue..... | Northward..... | 1 | 390 |
| Pine Grove avenue..... | Nellie avenue..... | Northward..... | 1 | 390 |
| Perry avenue..... | Fullerton avenue..... | Lill avenue..... | 1½ | 990 |
| Perry avenue..... | Lill avenue..... | Wrightwood avenue..... | 1 | 310 |
| Retta..... | Addison..... | Cornelia..... | 1 | 638 |
| Rokeyby..... | Nellie avenue..... | Addison avenue..... | 1 | 628 |
| Rokeyby..... | Nellie avenue..... | Grace..... | 1½ | 764 |
| Rokeyby..... | Addison avenue..... | Cornelia..... | 1 | 667 |
| School..... | Southport avenue..... | Perry avenue..... | 1 | 664 |
| School..... | Southport avenue..... | Herndon..... | 1½ | 662 |
| School..... | Herndon..... | Eastward..... | 1 | 565 |
| Seminary avenue..... | Belmont avenue..... | School..... | 1½ | 670 |
| Seminary avenue..... | School..... | Roscoe..... | 1 | 654 |
| Sheffield avenue..... | Addison avenue..... | Clark..... | 1 | 975 |
| Sulzer..... | Sheffield avenue..... | Eastward..... | 1 | 1,025 |
| Winthrop avenue..... | Thorndale avenue..... | Southward..... | 1½ | 505 |
| Winthrop avenue..... | Ardmour avenue..... | Northward..... | 1 | 492 |
| Winthrop avenue..... | Grand..... | Thorndale avenue..... | 1 | 1,650 |
| Winthrop avenue..... | Lawrence avenue..... | Ainslie..... | 1½ | 900 |
| Windsor avenue..... | Sheffield avenue..... | Hazel..... | 1½ | 620 |
| Windsor avenue..... | Hazel..... | Halsted..... | 1 | 655 |
| Wilton..... | Addison avenue..... | Cornelia..... | 1 | 667 |
| Wolftram..... | Southport avenue..... | Herndon..... | 1 | 640 |
| TOTAL..... | | | | 70,970 |

WING SEWERS BUILT IN THE YEAR 1890 IN THE WEST DIVISION.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|--------------------------|------------------------------|--------------------|-------------------|--------------------|
| Asylum place..... | Manhole in Elston avenue. | Westward..... | 2 | 56 |
| Asylum place..... | Manhole in Elston avenue. | Eastward..... | 1½ | 62 |
| Asylum place..... | Manhole in Robey..... | East and west..... | 1½ | 86 |
| Alice..... | Manhole in Western avenue | Westward..... | 1 | 34 |
| Athrill..... | Manhole in Milwaukee ave. | Southward..... | 1 | 36 |
| Albany avenue..... | Manhole in Twelfth..... | Southward..... | 1 | 60 |
| Albany avenue..... | Manhole in Twenty-second. | Southward..... | 2½ | 38 |
| Albany avenue..... | Manhole in Twenty-second. | Northward..... | 1½ | 42 |
| Augusta..... | Manhole in California ave.. | Eastward..... | 2 | 42 |
| Binzo place..... | Manhole in Elston avenue.. | Westward..... | 1½ | 40 |
| Bismarck..... | Manhole in California ave.. | Eastward..... | 1 | 46 |
| Burling..... | Manhole in Western avenue | Eastward..... | 1 | 38 |
| Bingham..... | Manhole in Armitage ave.. | Northward..... | 1½ | 58 |
| N. S. Bloomingdale road | Manhole in Paulina..... | East and west..... | 1 | 74 |
| N. S. Bloomingdale road | Manhole in Western avenue | East and west..... | 1 | 76 |
| N. S. Bloomingdale road | Manhole in Elkgrove..... | East and west..... | 1 | 82 |
| N. S. Bloomingdale road | Manhole in Dudley..... | East and west..... | 1 | 80 |
| S. S. Bloomingdale road | Manhole in Paulina..... | East and west..... | 1 | 80 |
| S. S. Bloomingdale road | Manhole in Western avenue | East and west..... | 1 | 64 |
| S. S. Bloomingdale road | Manhole in Dudley..... | East and west..... | 1 | 84 |
| S. S. Bloomingdale road | Manhole in Elkgrove..... | East and west..... | 1 | 84 |
| Basil..... | Manhole in North avenue.. | North..... | 1½ | 56 |
| Barkley..... | Manhole in Division..... | Southward..... | 1 | 40 |
| Byron..... | Manhole in California ave.. | Westward..... | 1½ | 40 |
| Cortland..... | Manhole in California ave.. | Eastward..... | 1 | 38 |
| Cortland..... | Manhole in Western avenue | Westward..... | 1 | 34 |
| Coblentz..... | Manhole in Robey..... | Westward..... | 1 | 39 |
| Commercial avenue.... | Manhole in Clybourn place. | Southward..... | 1 | 40 |
| Clara place..... | Manhole in Western avenue | Westward..... | 1 | 42 |
| Cornelia..... | Manhole in Milwaukee ave. | Southward..... | 1 | 37 |
| S. S. Central Park bould | Manhole in Kedzie avenue. | East and west..... | 1 | 110 |
| N. S. Central Park bould | Manhole in Kedzie avenue. | Eastward..... | 1 | 54 |
| Cromwell..... | Manhole in Milwaukee ave. | Northward..... | 1½ | 54 |
| Douglas Park place.... | Manhole in Fairfield avenue | Eastward..... | 1 | 36 |
| N. S. Douglas Park bld. | Manhole in Central Park ave. | Eastward..... | 2 | 38 |
| S. S. Douglas Park bld.. | Manhole in Central Park ave. | East and west..... | 1½ | 72 |
| N. S. Douglas Park bld. | Manhole in Central Park ave. | Westward..... | 2 | 38 |
| W. S. Douglas Park bld | Manhole in Twenty-second. | Northward..... | 1½ | 40 |
| E. S. Douglas Park bld. | Manhole in Twenty-second. | Northward..... | 1½ | 38 |
| E. S. Douglas Park bld. | Manhole in Twenty-second. | Southward..... | 1 | 40 |
| W. S. Douglas Park bld | Manhole in Twenty-second. | Southward..... | 2 | 38 |
| Dixon avenue..... | Manhole in California ave.. | Westward..... | 1½ | 44 |
| Eighteenth..... | Manhole in Central Park ave | East and west..... | 1½ | 70 |
| Eighteenth..... | Manhole in California ave.. | Eastward..... | 2 | 40 |
| Edbrooke place..... | Manhole in Western avenue | Westward..... | 1 | 38 |
| Ems..... | Manhole in Western avenue | Eastward..... | 1 | 32 |
| Erie..... | Manhole in Western avenue | Westward..... | 2 | 38 |
| Francis..... | Manhole in California ave.. | Eastward..... | 1 | 38 |
| Francisco..... | Manhole in Twelfth..... | Northward..... | 1 | 54 |
| Fairfield avenue..... | Manhole in Twenty-second. | Northward..... | 1 | 40 |
| Follansbee..... | Manhole in Milwaukee ave. | Westward..... | 1 | 58 |
| Frankfort..... | Manhole in Western ave.. | Eastward..... | 1 | 34 |
| Frankfort..... | Manhole in Oakley..... | East and west..... | 1 | 64 |
| Frankfort..... | Manhole in Robey..... | Westward..... | 1 | 42 |
| Fifteenth..... | Manhole in Central Park ave. | East and west..... | 2 | 76 |
| Gloy place..... | Manhole in Elston avenue.. | Westward..... | 1½ | 44 |

WEST DIVISION—CONTINUED.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|------------------------|-----------------------------|-----------------|-------------------|--------------------|
| Grenshaw..... | Manhole in Olive..... | Westward..... | 1 | 36 |
| Homer..... | Manhole in Western ave. . | Westward..... | 1 | 36 |
| Hull avenue..... | Manhole in Twelfth..... | Northward..... | 1 | 56 |
| Hamburg..... | Manhole in Robey..... | Westward..... | 1 | 42 |
| Hirsch..... | Manhole in Western ave. . | East and west . | 1 | 79 |
| Hirsch..... | Manhole in Oakley avenue. | East and west . | 1 | 86 |
| Hirsch..... | Manhole in California ave. | Eastward..... | 1 | 46 |
| Hirsch..... | Manhole in Davis..... | East and west . | 1 | 80 |
| Hamburg..... | Manhole in Western ave. . | Eastward..... | 1 | 37 |
| Humboldt..... | Manhole in California ave. | Eastward..... | 1 | 33 |
| Humboldt..... | Manhole in North avenue.. | Northward..... | 1½ | 56 |
| E. S. Humboldt boul'd. | Manhole in North avenue.. | Northward..... | 1½ | 56 |
| W. S. Humboldt boul'd. | Manhole in North avenue.. | Northward..... | 1½ | 56 |
| Hoffman..... | Manhole in Milwaukee ave. | Northward..... | 2 | 58 |
| Homan avenue..... | Manhole in Twenty-second. | Southward..... | 2½ | 38 |
| Homan avenue..... | Manhole in Twelfth..... | Southward..... | 1 | 60 |
| Heine..... | Manhole in North avenue.. | Northward..... | 1½ | 56 |
| Huron..... | Manhole in Western ave. . | Westward..... | 1 | 40 |
| Hoyle avenue..... | Manhole in Fullerton ave. | Southward..... | 2 | 45 |
| Iowa..... | Manhole in California ave. | Eastward..... | 2½ | 43 |
| Jefferson place..... | Manhole in Western ave. . | Westward..... | 1 | 38 |
| Jane..... | Manhole in Western ave. . | Eastward..... | 1 | 37 |
| Kosciusko..... | Manhole in Robey..... | Westward..... | 1 | 42 |
| Kuehl place..... | Manhole in Elston avenue.. | Westward..... | 1½ | 44 |
| Kedzie avenue..... | Manhole in Twenty-second. | Southward..... | 3½ | 44 |
| Leavitt..... | Manhole in Fullerton ave. | Southward..... | 2 | 45 |
| Lafin..... | Manhole in Nineteenth..... | Southward..... | 1 | 40 |
| Lafin..... | Manhole in Seventeenth..... | Northward..... | 1 | 40 |
| Leavitt..... | Manhole in Fullerton ave. | Northward..... | 2 | 45 |
| Lister..... | Manhole in Robey..... | Eastward..... | 1 | 58 |
| Linwood..... | Manhole in California ave. | Westward..... | 1 | 42 |
| Lubeck..... | Manhole in Oakley avenue. | East and west . | 1 | 64 |
| Lubeck..... | Manhole in Robey..... | Northward..... | 1 | 42 |
| Lubeck..... | Manhole in Western ave. . | Eastward..... | 1 | 34 |
| Moffat..... | Manhole in Western ave. . | Westward..... | 1 | 30 |
| Mozart..... | Manhole in North avenue.. | Northward..... | 1½ | 58 |
| Mitchell..... | Manhole in North avenue.. | Northward..... | 1½ | 56 |
| Myrtle avenue..... | Manhole in Milwaukee ave. | Northward..... | 2 | 57 |
| Norman..... | Manhole in North avenue.. | Northward..... | 1½ | 58 |
| Nineteenth..... | Manhole in California ave. | East and west . | 1½ | 94 |
| Oakley avenue..... | Manhole in Eighteenth..... | Southward..... | 1 | 38 |
| Oakley avenue..... | Manhole in Fullerton ave. | North and south | 2 | 90 |
| Palmer..... | Manhole in California ave. | Westward..... | 1½ | 42 |
| Paulina..... | Manhole in Elston avenue.. | Southward..... | 2 | 43 |
| Perry..... | Manhole in Milwaukee ave. | Northward..... | 2 | 52 |
| Pleasant place..... | Manhole in Western avenue | Westward..... | 1 | 37 |
| Point..... | Manhole in Armitage ave. | Northward..... | 2 | 60 |
| Point..... | Manhole in California ave. | Eastward..... | 1½ | 46 |
| Potomac avenue..... | Manhole in Western avenue | Westward..... | 1 | 40 |
| Potomac avenue..... | Manhole in California ave. | Eastward..... | 2 | 33 |
| Powell avenue..... | Manhole in Milwaukee ave. | Northward..... | 2½ | 63 |
| Prindville..... | Manhole in Milwaukee ave. | Southward..... | 1 | 88 |
| Rebecca..... | Manhole in California ave. | Eastward..... | 1½ | 43 |
| Rhine..... | Manhole in Western avenue | Eastward..... | 1 | 34 |
| Rhine..... | Manhole in Milwaukee ave. | Northward..... | 1 | 38 |
| Rockwell..... | Manhole in Armitage ave. | Southward..... | 2 | 36 |

WEST DIVISION—CONTINUED.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|-------------------------|------------------------------|-----------------------|-------------------|--------------------|
| Rockwell | Manhole in Thomas avenue | Southward | 1½ | 38 |
| Rosebud | Manhole in Western avenue | Eastward | 1 | 48 |
| Sawyer avenue | Manhole in Twelfth | Southward | 1 | 58 |
| Sawyer avenue | Manhole in Twenty-second. | Northward | 1 | 36 |
| Sawyer avenue | Manhole in Twenty-second. | Southward | 1½ | 38 |
| Sacramento avenue | Manhole in Twelfth | Northward | 1 | 56 |
| Sacramento avenue | Manhole in Division | Southward | 1 | 40 |
| Seymour | Manhole in Armitage ave. | Southward | 2 | 36 |
| Seymour | Manhole in Thomas | Southward | 1½ | 44 |
| Sheridan avenue | Manhole in Twelfth | Northward | 1 | 52 |
| Shakspeare | Manhole in California ave. | Westward | 1½ | 44 |
| Spaulding avenue | Manhole in Twenty-second. | Southward | 2½ | 40 |
| Spaulding avenue | Manhole in Twenty-second. | Northward | 1 | 42 |
| Spaulding avenue | Manhole in Twelfth | Southward | 1 | 58 |
| Sobieski | Manhole in Fullerton ave. | Southward | 1 | 45 |
| St. Louis avenue | Manhole in Twenty-second. | Northward | 1½ | 44 |
| St. Louis avenue | Manhole in Twelfth | Southward | 1½ | 62 |
| St. Paul | Manhole in Western avenue | Eastward | 1½ | 34 |
| St. George | Manhole in Milwaukee ave. | Southward | 1 | 38 |
| Stave | Manhole in Armitage ave. | Northward | 2 | 58 |
| Stave | Manhole in California ave. | Eastward | 1½ | 50 |
| Sixteenth | Manhole in Central Park ave. | East and west | 2 | 72 |
| Superior | Manhole in Western avenue | Westward | 1 | 40 |
| Troy | Manhole in Twelfth | Southward | 1 | 60 |
| Twenty-first | Manhole in Jefferson | Westward | 1 | 40 |
| Thomas | Manhole in Dudley | Westward | 1 | 40 |
| Thompson | Manhole in California ave. | Eastward | 1 | 46 |
| Thomas | Manhole in Western avenue | Eastward | 1 | 35 |
| Thompson | Manhole in Davis | East and west | 1 | 75 |
| Turner avenue | Manhole in Twenty-second. | Southward | 1½ | 42 |
| Thompson | Manhole in Western avenue | East and west | 1 | 74 |
| Thompson | Manhole in Oakley avenue. | East and west | 1 | 80 |
| Thomas | Manhole in Dudley | Eastward | 1 | 42 |
| Turner avenue | Manhole in Twelfth | Southward | 1 | 58 |
| Talman avenue | Manhole in Ogden avenue. | North and south | 1 | 166 |
| Troy | Manhole in Twenty-second. | North and south | 1½ | 82 |
| Trumbull avenue | Manhole in Twenty-second. | Southward | 1½ | 52 |
| Twentieth | Manhole in California ave. | Westward | 1½ | 44 |
| Twenty-first | Manhole in California ave. | Westward | 2 | 40 |
| Twenty-first | Manhole in California ave. | Eastward | 1½ | 40 |
| Washburn avenue | Manhole in Fairfield ave. | East and west | 1 | 77 |
| Washburn avenue | Manhole in California ave. | Eastward | 1 | 42 |
| Washtenaw avenue | Manhole in Ogden avenue. | Southward | 1 | 76 |
| Washtenaw avenue | Manhole in Twenty-second. | Northward | 2 | 40 |
| Washtenaw avenue | Manhole in Twenty-second. | Southward | 1½ | 42 |
| Washtenaw avenue | Manhole in Armitage ave. | Southward | 2 | 36 |
| Washtenaw avenue | Manhole in Thomas | Southward | 1½ | 40 |
| Washtenaw avenue | Manhole in Lexington ave. | Northward | 1 | 40 |
| Wabansia avenue | Manhole in Western avenue | Eastward | 2 | 36 |
| Wabansia avenue | Manhole in Western avenue | Westward | 1 | 42 |
| Western avenue | Manhole in Fullerton ave. | Southward | 2 | 48 |
| Western avenue | Manhole in Fullerton ave. | Northward | 2 | 55 |
| Whipple | Manhole in Twenty-second. | Southward | 1½ | 40 |
| Werder | Manhole in California ave. | Eastward | 1 | 38 |
| TOTAL | | | | 8,358 |

WING SEWERS BUILT IN THE YEAR 1890 IN THE SOUTH DIVISION.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|-------------------------|----------------------------|------------------|-------------------|--------------------|
| Alley W. of Grand bld. | Manhole in Forty-third.... | Southward..... | 1 | 34 |
| Buena Vista place..... | Manhole in Emerald avenue | Eastward..... | 1 | 37 |
| Calumet avenue..... | Manhole in Forty-third.... | Northward..... | 1½ | 35 |
| Calumet avenue..... | Manhole in Fifty-first.... | Southward..... | 2 | 40 |
| Chestnut..... | Manhole in Halsted..... | Eastward..... | 1½ | 40 |
| Concord..... | Manhole in Halsted..... | Eastward..... | 1 | 40 |
| Forty-fourth..... | Manhole in Michigan ave.. | East and west .. | 1 | 116 |
| Forty-sixth..... | Manhole in Michigan ave.. | East and west .. | 1 | 118 |
| Forty-seventh..... | Manhole in Michigan ave.. | East and west .. | 1 | 106 |
| Forty-eighth..... | Manhole in Halsted..... | Westward..... | 1½ | 40 |
| Forty-eighth..... | Manhole in Michigan ave.. | East and west .. | 1 | 106 |
| Forty-eighth..... | Manhole in Halsted..... | Eastward..... | 1 | 40 |
| Forty-ninth..... | Manhole in Halsted..... | Westward..... | 1½ | 40 |
| Forty-ninth..... | Manhole in Halsted..... | Eastward..... | 1 | 40 |
| Forty-ninth..... | Manhole in Michigan ave.. | East and west .. | 1 | 106 |
| Fiftieth..... | Manhole in Halsted..... | Westward..... | 1½ | 40 |
| Fiftieth..... | Manhole in Halsted..... | Eastward..... | 1 | 40 |
| Fiftieth..... | Manhole in Michigan ave.. | East and west .. | 1 | 106 |
| Fiftieth court..... | Manhole in Halsted..... | Westward..... | 1½ | 40 |
| Fiftieth..... | Manhole in Halsted..... | Eastward..... | 1 | 40 |
| Fifty-second..... | Manhole in Ellis avenue.. | East and west .. | 1 | 92 |
| Fifty-second..... | Manhole in Halsted..... | Westward..... | 1½ | 40 |
| Fifty-second..... | Manhole in Michigan ave.. | East and west .. | 1 | 106 |
| Fifty-third..... | Manhole in Ellis avenue.. | East and west .. | 1 | 92 |
| Fifty-third..... | Manhole in Michigan ave.. | East and west .. | 1 | 106 |
| Fifty-fourth place..... | Manhole in Ellis avenue.. | East and west .. | 1 | 168 |
| Fifty-fourth..... | Manhole in Ellis avenue.. | East and west .. | 1½ | 92 |
| Fifty-fourth..... | Manhole in Michigan ave.. | East and west .. | 1 | 106 |
| Fifty-seventh..... | Manhole in Halsted..... | Eastward..... | 2 | 40 |
| Fifty-eighth..... | Manhole in Halsted..... | Eastward..... | 2 | 40 |
| Fifty-eighth..... | Manhole in Halsted..... | Westward..... | 2 | 40 |
| Fifty-ninth..... | Manhole in Halsted..... | Eastward..... | 2 | 40 |
| N. S. Garfield boul'd. | Manhole in Halsted..... | East and west .. | 1½ | 80 |
| Gunn..... | Manhole in Halsted..... | East and west .. | 1 | 40 |
| Haven..... | Manhole in Shields..... | Westward..... | 1 | 39 |
| Haynes court..... | Manhole in Hickory..... | Southward..... | 1 | 37 |
| Hickling..... | Manhole in Halsted..... | Westward..... | 1½ | 40 |
| Indiana avenue..... | Manhole in Fifty-first.... | Southward..... | 2 | 36 |
| Leo..... | Manhole in Archer avenue. | Southward..... | 1 | 45 |
| Logan..... | Manhole in Halsted..... | East and west .. | 1 | 80 |
| Michigan avenue..... | Manhole in Fifty-first.... | Northward..... | 2 | 86 |
| Mattison..... | Manhole in Halsted..... | Westward..... | 1 | 40 |
| Oxford court..... | Manhole in Vernon avenue. | East and west .. | 1 | 74 |
| Prairie avenue..... | Manhole in Fifty-first.... | Southward..... | 2 | 38 |
| Sixtieth..... | Manhole in Halsted..... | Eastward..... | 1½ | 40 |
| Sixty-first..... | Manhole in Halsted..... | Westward..... | 2½ | 44 |
| Sixty-second..... | Manhole in Halsted..... | East and west .. | 1½ | 80 |
| Sixtieth..... | Manhole in Halsted..... | Westward..... | 1½ | 40 |
| Sixty-first..... | Manhole in Halsted..... | Eastward..... | 1½ | 43 |
| Sherman..... | Manhole in Cleveland ave. | Northward..... | 1 | 43 |
| Sherman..... | Manhole in Root..... | North and south. | 1 | 80 |
| Seneschal..... | Manhole in Root..... | Northward..... | 1½ | 43 |
| School..... | Manhole in Root..... | Northward..... | 1½ | 43 |
| Seventy-seventh..... | Manhole in Morgan..... | Westward..... | 1½ | 45 |
| Seventy-eighth..... | Manhole in Morgan..... | Westward..... | 1½ | 45 |
| Thirtieth..... | Manhole in Emerald ave.. | East and west .. | 1 | 74 |

SOUTH DIVISION—CONTINUED.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|----------------------------|------------------------------|---------------------|-------------------|--------------------|
| Thirty-second | Manhole in Emerald ave... | Eastward | 1 | 37 |
| Thirty-second | Manhole in Stewart avenue | Eastward | 1 | 22 |
| Thirty-third court. | Manhole in Wood. | East and west .. | 1 | 74 |
| Thirty-third | Manhole in Emerald ave... | East and west | 1 | 74 |
| Thirty-third | Manhole in Stewart avenue | Eastward | 1 | 24 |
| Thirty-fourth | Manhole in Wood. | East and west | 1 | 74 |
| Thirty-fourth court. | Manhole in Wood. | Westward. | 1 | 37 |
| Thirty-fourth | Manhole in Emerald ave... | East and west | 1 | 74 |
| Thirty-sixth | Manhole in Wood. | Eastward. | 1 | 36 |
| Thirty-sixth | Manhole in Wood. | Westward. | 1 | 37 |
| Thirty-sixth | Manhole in Paulina | East and west | 1 | 72 |
| Thirty-seventh. | Manhole in Wood. | East and west | 1 | 72 |
| Thirty-seventh. | Manhole in Paulina | East and west | 1 | 72 |
| Thirty-seventh court. | Manhole in Stewart avenue | Eastward. | 1 | 22 |
| Thirty-eighth. | Manhole in Emerald ave... | East and west | 1 | 74 |
| Thirty-eighth. | Manhole in Wood. | East and west | 1 | 70 |
| Thirty-eighth. | Manhole in Paulina | East and west | 1 | 70 |
| Thirty-eighth. | Manhole in Stewart avenue | Eastward. | 1½ | 22 |
| Thirty-eighth court | Manhole in Stewart avenue | Eastward | 1½ | 22 |
| Wabash avenue | Manhole in Forty-third. | Southward. | 1½ | 29 |
| TOTAL ..... | ..... | ..... | ..... | 4,832 |

WING SEWERS BUILT IN THE YEAR 1890 IN THE NORTH DIVISION.

| STREET. | FROM | TO | Diam. in Feet. | Length in Feet. |
|---------------------------|------------------------------|-----------------------|-------------------|--------------------|
| Alley E. of Astor . . . | Manhole in Burton place . . | Southward | 1 | 40 |
| Alley E. of Pine Grove av | Manhole in Addison | Southward | 1½ | 40 |
| Astor | Manhole in Burton place . . | Northward | 1 | 33 |
| Baxter | Manhole in Belmont ave . . | Northward | 1½ | 38 |
| Bordman place | Manhole in Southport ave . | Westward | 1 | 38 |
| Byron | Manhole in Ashland ave . . | Eastward | 1 | 45 |
| Dunning | Manhole in Southport ave . | East and west | 1 | 76 |
| Elaine place | Manhole in Roscoe | Northward | 1 | 36 |
| Evanston avenue . . . | Manhole in N. Fifty-ninth . | North and south . . . | 2½ | 76 |
| Fletcher | Manhole in Southport ave . | Westward | 1 | 45 |
| George | Manhole in Sheffield ave . . | Westward | 1 | 38 |
| George | Manhole in Southport ave . | East and west | 1 | 90 |
| Grace | Manhole in Ashland ave . . | Westward | 1 | 45 |
| Lill avenue | Manhole in Racine avenue . | Westward | 1 | 38 |
| Lincoln avenue | Manhole in Racine avenue . | Eastward | 1 | 50 |
| Marcy | Manhole in Sheffield ave . . | Westward | 1½ | 62 |
| Marianna avenue . . . | Manhole in Florence | Westward | 1 | 38 |
| Melrose | Manhole in Robey | Westward | 1½ | 38 |
| Nelson | Manhole in Racine avenue . | Westward | 1 | 45 |
| Nelson | Manhole in Southport ave . | Eastward | 1 | 45 |
| Noble | Manhole in Southport ave . | East and west | 1 | 90 |
| Noble | Manhole in Racine avenue . | Westward | 1 | 45 |
| Oakdale avenue | Manhole in Racine avenue . | East and west | 1 | 90 |
| Oakdale avenue | Manhole in Southport ave . | Westward | 1 | 45 |
| Olga | Manhole in Grace | Southward | 1 | 45 |
| Perry | Manhole in Belmont ave . . | Southward | 1 | 38 |
| Racine avenue | Manhole in Grace | Northward | 1½ | 45 |
| School | Manhole in Ashland avenue | Eastward | 1 | 38 |
| School | Manhole in Robey | Westward | 1 | 38 |
| Sheffield avenue | Manhole in N. Fifty-ninth . | Northward | 1½ | 38 |
| Wilton avenue | Manhole in Grace | Northward | 1 | 50 |
| Wolfram | Manhole in Southport ave . | East and west | 1 | 90 |
| Wrightwood avenue . . | Manhole in Southport ave . | Westward | 1 | 38 |
| TOTAL | | | | 1,646 |

TOTAL LENGTH OF SEWERS CONSTRUCTED DURING
THE YEAR 1890.

| DIVISIONS. | LENGTH IN FEET. | MILES. |
|--------------------------|--------------------|--------|
| West Division | 86,061 | 16,299 |
| South Division | 220,526 | 41,766 |
| North Division | 72,616 | 13,753 |
| GRAND TOTAL | 379,203 | 71,818 |

MANHOLES AND CATCH-BASINS RAISED TO GRADE ON STREETS ORDERED IMPROVED, TOGETHER
WITH COST OF SAME, DURING THE YEAR 1890, AS FOLLOWS:

| No. | DESCRIPTION OF WORK DONE. | Cement. | Brick. | Covers. | | | Straight Pipe. | | | Curv'd Pipe. | | | Traps. | Elbows. | Cost. | | TOTAL COST. |
|-------|-----------------------------------|---------|-----------|---------|-------|-------------------|----------------|--------|-------|--------------|-------|--------|--------|------------|-----------------------|--------------------|-------------|
| | | | | Iron. | Wood. | Mil. w'lec. Iron. | 9 in. | 12 in. | 9 in. | 12 in. | 9 in. | 12 in. | | | Material, Bills, etc. | Labor and Teaming. | |
| 3,227 | Manholes raised to grade..... | 3,552 | 1,172,135 | 1,276 | 1,206 | 6 | 110 | 1,713 | 53 | 36 | 8 | 23 | 4,192 | 439,456 41 | \$29,282 70 | | \$68,739 11 |
| 3,063 | Catch-basins raised to grade..... | | | | | | | | | | | | | | | | |

AMOUNT EXPENDED FOR REPAIRS OF SEWERS, MANHOLES AND CATCH-BASINS, ALSO MANHOLE
AND CATCH-BASIN COVERS, DURING THE YEAR 1890, AS FOLLOWS:

| No. | DESCRIPTION OF WORK DONE. | Cement. | Brick. | Covers. | | Straight Pipe. | | | | Curved Pipe. | | | Junctions. | Traps. | Elbows. | COST. | |
|-----|------------------------------------|---------|--------|---------|-------|----------------|-------|--------|--------|--------------|-------|--------|------------|--------|---------|--------|-----|
| | | | | Iron. | Wood. | 6 in. | 9 in. | 12 in. | 15 in. | 18 in. | 8 in. | 12 in. | | | | 18 in. | 9x9 | 6x15 | 9 in. | Material, Bills, etc. | Labor and Teaming. | Total Cost |
| 37 | Manholes repaired..... | 117 | 16,450 | 11 | 25 | 141 | 756 | 27 | 19 | 81 | 4 | 2 | 4 | 6 | 8 | | |
| 56 | Catch-basins repaired..... | | | | | | | | | | | | | | | | |
| 156 | Feet of 6-in. drains repaired..... | 2 | 2,500 | | | | | | | | | | | | | | |
| 986 | Feet of 9-in. drains repaired..... | 23 | 1,500 | | | | | | | | | | | | | | |
| 112 | Feet of 12-in. sewer repaired..... | 11 | 1,000 | | | | | | | | | | | | | | |
| 87 | Feet of 15-in. sewer repaired..... | 10 | 1,200 | | | | | | | | | | | | | | |
| 136 | Feet of 18-in. sewer repaired..... | 13 | 1,200 | | | | | | | | | | | | | | |
| 55 | Feet of 2-ft. sewer repaired..... | 10 | 2,500 | | | | | | | | | | | | | | |
| 60 | Feet of 2½-ft. sewer repaired..... | 23 | 3,000 | | | | | | | | | | | | | | |
| 34 | Feet of 5-ft. sewer repaired..... | 22 | 8,000 | | | | | | | | | | | | | | |
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RECEIPTS IN THE HOUSE DRAIN DEPARTMENT DURING THE YEAR 1890.

| DIVISIONS. | PERMITS ISSUED. | | | | | Receipts. |
|-------------------------------|-----------------|----------|---------|---------|--------|-------------|
| | 15-inch. | 12-inch. | 9-inch. | 6-inch. | Total. | |
| West..... | 1 | 1 | 48 | 1,869 | 1,919 | \$ 9,922 50 |
| South..... | | 8 | 50 | 789 | 792 | 4,245 00 |
| North..... | | | 19 | 140 | 159 | 902 50 |
| Lake View..... | | | 12 | 1,863 | 1,875 | 8,957 50 |
| Hyde Park..... | | | 20 | 1,222 | 1,242 | 6,322 50 |
| Town of Lake..... | | 3 | 58 | 1,925 | 1,981 | 10,230 00 |
| Licenses..... | | | | | | 1,265 00 |
| Special assessments, etc..... | | | | | | 42,279 05 |
| TOTALS..... | 1 | 7 | 202 | 7,758 | 7,968 | \$34,124 05 |

NUMBER OF HOUSE DRAINS PUT IN PLACE DURING THE YEAR 1890
UNDER SPECIAL ASSESSMENT.

| DIVISIONS. | Total Num- ber of Drains. | Total Length in Feet. | Total Cost. | Average Cost per Drain. | Average Length of Drain in Feet | Average Cost per Foot. |
|-------------------|---------------------------------|-----------------------------|-------------|-------------------------------|---------------------------------------|------------------------------|
| West..... | 3,579 | 102,022 | \$26,074 54 | \$7 29 | 28.51 | \$0.25.56 |
| South..... | 946 | 24,241 | 5,332 99 | 5 64 | 25.62 | 22.00 |
| North..... | 84 | 2,243 | 643 70 | 7 66 | 26.7 | 28.7 |
| Lake View..... | 2,136 | 56,181 | 18,858 32 | 8 88 | 26.3 | 33.56 |
| Hyde Park..... | 1,401 | 39,633 | 14,782 78 | 10 55 | 28.29 | 37.3 |
| Town of Lake..... | 1,183 | 22,756 | 10,889 00 | 9 17 | 28.22 | 32.49 |
| TOTAL..... | 9,279 | 247,076 | \$76,076 33 | \$8 19 | 27.27 | \$0.29.93 |

Making a total of 46.78 miles of six-inch drains, laid by contract and paid for by special assessment.

In closing this report I desire to call attention to the fact that prior to the annexation of Lake View, Hyde Park, Lake, and a portion of Cicero, to the city, all public sewers were built from a fund raised by general taxation in Chicago, while in the annexed districts they were built and paid for by special assessments.

On April 14, 1890, the Common Council passed an order providing that all sewers, hereafter built in the city of Chicago, should be paid for by special assessment upon the property thereby benefited. Prior to the passage of the above order, the appropriation bill for the year of 1890 had been passed, making special appropriations for main sewers on the following streets, to-wit: In Egan avenue, from Halsted street to Wentworth avenue; in Douglas avenue, from Archer avenue to Western avenue; in Armitage avenue, from California avenue to Kedzie avenue, and in Fullerton avenue, from Western avenue to Kedzie avenue, all of which have been built during the year. A portion of the cost of large main sewers, in West Fortieth street, from the West fork of the South branch of the Chicago river north to Division street; in North avenue from Kedzie avenue to Grand avenue, and in Belmont avenue from North branch of the Chicago river west to Milwaukee avenue, was also appropriated. These amounts have been transferred to the special assessments levied for their construction, and will be expended during the year 1891. There were about four miles of small sewers under contract for construction at the time the above order was passed, which have been completed, and paid for from the Sewerage Tax Fund. Since the passage of the order, four hundred and twenty-six (426) ordinances for special assessments, representing about one hundred and seventy (170) miles of sewers of various sizes, have been drawn by the bureau and sent to the City Council for approval.

In closing this report, please allow me to thank you, and all the other officers of the department for the uniform courtesy and assistance extended to me in the discharge of the duties of the office, and to certify to the efficiency and faithfulness of all the gentlemen employed in the bureau, in the discharge of their various duties.

Respectfully submitted,

O. H. CHENEY,

Superintendent of Sewers.

REPORT
OF THE
Bureau of Streets

CITY OF CHICAGO

BUREAU OF STREETS.

CHICAGO, January 1, 1891.

HON. W. H. PURDY,

Commissioner of Public Works.

DEAR SIR:—I have the honor to submit herewith the Fifteenth Annual Report of the Bureau of Streets for the year ending December 31, 1890. It embraces in detail a review of the work accomplished during the year under the supervision of this bureau, with the amount expended. Also, the street railway extensions made by the different street railway companies, the work done by the several railroad companies under the ordinance of March 26, 1890, and data in connection with the telegraph and telephone companies, together with a report of the condition and repairs of all street lamps within the old city limits and annexed territory.

| | |
|--|-----------------------|
| The amount paid contractors for street improvements by special assessment was..... | \$ 2,280,875 79 |
| For sidewalks built by the bureau under special assessment..... | 65,860 00 |
| For sweeping and cleaning improved streets: | |
| By contract..... | \$110,594 89 |
| By department..... | 60,877 41 |
| | <u>\$171,272 30</u> |
| For cleaning macadamized roadways.... | 27,567 93 |
| | <u>198,840 23</u> |
| For repaving and repairing improved streets..... | 150,756 14 |
| For grading, ditching, building, and repairing aprons, culverts, crossings, etc., on unimproved streets..... | 233,872 32 |
| For sidewalk intersections..... | \$41,808 57 |
| For sidewalks, general repairs..... | 68,760 88 |
| | <u>110,564 45</u> |
| For city parks..... | 9,178 80 |
| For city hall operation and maintenance..... | 83,301 35 |
| For constructing and operating gasoline lamps..... | \$83,508 60 |
| For erecting posts and signs..... | 10,107 62 |
| For gas lamp repairs..... | 11,213 90 |
| | <u>104,830 12</u> |
| TOTAL | <u>\$3,238,074 20</u> |

STREETS IMPROVED, NORTH

| NAME OF STREET. | FROM | TO | COMMENCED. |
|--------------------------------|------------------------|----------------------------|----------------|
| *Clybourn avenue..... | Division | Ashland avenue..... | |
| Concord place..... | Sheffield avenue..... | Clybourn avenue..... | June 24, 1890 |
| Deming court..... | Clark..... | Lake View avenue..... | Aug. 1, 1890 |
| *Division..... | Clybourn avenue..... | Wells..... | |
| Dunning..... | Halsted..... | Racine avenue..... | July 11, 1890 |
| Early avenue..... | Southport avenue..... | Evanston avenue..... | Sept. 1, 1890 |
| Elaine..... | Roscoe..... | Cornelia..... | |
| Elm..... | Larrabee..... | Sedgwick..... | June 16, 1890 |
| *Elm..... | Wells..... | Eastern terminus..... | |
| Fletcher..... | Halsted..... | Evanston avenue..... | June 1, 1890 |
| Florence avenue..... | Diversy avenue..... | Wrightwood avenue..... | Aug. 1, 1890 |
| Florimond..... | Wells..... | Franklin..... | May 10, 1890 |
| Fullerton avenue, north ½..... | Lincoln avenue..... | Southport avenue..... | June 1, 1890 |
| Fullerton avenue, south ½..... | Halsted..... | Southport avenue..... | June 1, 1890 |
| Gardner..... | Halsted..... | Vine..... | May 15, 1890 |
| *Gordon terrace..... | Halsted..... | 500 feet east..... | July 1, 1890 |
| Grace..... | Clark..... | Lake Michigan..... | |
| Hammond..... | Eugenie..... | Tell court..... | May 28, 1890 |
| Hill..... | Wells..... | Sedgwick..... | June 28, 1890 |
| Hill..... | Wells..... | Eastern terminus..... | |
| Hinche..... | Blackhawk..... | Clybourn avenue..... | Nov. 5, 1890 |
| Huron..... | Kingsbury..... | Western terminus..... | Sept. 26, 1890 |
| Huron..... | Franklin..... | Kingsbury..... | Aug. 15, 1890 |
| Illinois..... | Market..... | Kingsbury..... | Sept. 17, 1890 |
| Illinois..... | Market..... | Franklin..... | June 19, 1890 |
| *Kenmore..... | Ardmore avenue..... | Thorndale avenue..... | Mar. 1, 1890 |
| *Kenmore..... | North Fifty-ninth..... | Balmoral avenue..... | Mar. 1, 1890 |
| *Lakeside..... | Sheffield avenue..... | Halsted..... | Aug. 1, 1890 |
| *Mayfair..... | Perry..... | Southport avenue..... | Mar. 1, 1890 |
| Montana..... | Lincoln avenue..... | Racine avenue..... | Sept. 10, 1890 |
| Montana..... | Lincoln avenue..... | Racine avenue..... | |
| Nellie avenue..... | Evanston avenue..... | E. line Hundley's sub..... | Aug. 15, 1890 |
| North Fifty-ninth..... | Evanston avenue..... | Sheffield avenue..... | Sept. 1, 1890 |
| *North Branch..... | Division..... | Blackhawk..... | |
| *Oakdale avenue..... | Evanston avenue..... | Lake View avenue..... | |
| *Oakdale avenue..... | Evanston avenue..... | Clark..... | |
| *Perry..... | Graceland avenue..... | Berteau..... | Mar. 1, 1890 |
| Pine Grove avenue..... | Cornelia..... | Grace..... | Oct. 1, 1890 |
| *Pine Grove avenue..... | Grace..... | 180 n. of Byron..... | |
| Racine avenue..... | Center..... | Fullerton avenue..... | Aug. 1, 1890 |
| Racine avenue..... | Fullerton avenue..... | Lincoln avenue..... | Aug. 1, 1890 |
| Roscoe boulevard..... | Robey..... | Western avenue..... | Sept. 1, 1890 |
| *Roscoe boulevard..... | Evanston..... | Halsted..... | Aug. 22, 1890 |
| Rush..... | Erie..... | Chicago avenue..... | July 1, 1890 |
| Seminary avenue..... | Center..... | Fullerton avenue..... | Sept. 26, 1890 |
| Seminary avenue..... | Fullerton avenue..... | Diversy avenue..... | Aug. 1, 1890 |
| Seminary place..... | Racine avenue..... | Seminary avenue..... | Oct. 15, 1890 |
| Sheffield avenue..... | North avenue..... | Clybourn avenue..... | Oct. 17, 1890 |
| Sheffield avenue..... | Clybourn avenue..... | Fullerton avenue..... | June 11, 1890 |

* Private contract.

STREET DEPARTMENT.

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DIVISION, 1890—CONTINUED.

| FINISHED. | CONTRACTOR. | NATURE OF IMPROVEMENT. | SQUARE YARDS. | LINEAL FEET. |
|----------------|--------------------------------|--------------------------------|---------------|--------------|
| ..... | A. Swedman..... | Cedar blocks..... | 27,512.78 | 11,255.28 |
| July 9, 1890 | Western Paving & Supply Co.. | C. F. Cedar blocks... | 2,521.45 | 597.18 |
| Sept. 4, 1890 | P. Farrell..... | C. Cedar blocks..... | 2,925.00 | 877.50 |
| ..... | A. Swedman..... | Cedar blocks..... | 3,634.22 | 1,486.73 |
| Aug. 7, 1890 | O. Vider & Co..... | C. C. Cedar blocks... | 8,672.20 | 2,435.30 |
| Oct. 1, 1890 | C. B. Parsons..... | C. C. F. Macadam..... | 5,520.00 | 1,656.00 |
| Unfinished... | C. B. Parsons..... | C. C. F. Macadam..... | ..... | 600.00 |
| July 15, 1890 | O. Vider & Co..... | C. C. Cedar blocks... | 4,116.78 | 969.92 |
| ..... | O. Vider & Co..... | C. C. Cedar blocks... | 1,305.77 | 304.45 |
| June 30, 1890 | J. J. Duffy & Co..... | C. C. F. Cedar blocks... | 4,419.00 | 1,325.70 |
| Sept. 10, 1890 | O. Vider & Co..... | C. C. F. Cedar blocks... | 4,689.00 | 1,318.80 |
| May 26, 1890 | Western Paving & Supply Co.. | C. C. Cedar blocks... | 1,639.30 | 491.79 |
| Sept. 30, 1890 | O. Vider & Co..... | C. C. Cedar blocks... | 8,665.60 | 4,104.70 |
| Sept. 30, 1890 | O. Vider & Co..... | C. C. Cedar blocks... | 6,437.00 | 4,258.50 |
| May 28, 1890 | O. Vider & Co..... | C. F. Cedar blocks... | 3,422.50 | 1,108.00 |
| Aug. 1, 1890 | C. B. Parsons..... | C. G. Macadam..... | 1,555.56 | 500.50 |
| Unfinished... | Jas. Lyman & Co..... | C. G. Macadam..... | ..... | 1,200.00 |
| Aug. 23, 1890 | J. B. Smith & Co..... | C. C. Cedar blocks... | 1,948.34 | 461.45 |
| July 25, 1890 | O. Vider & Co..... | C. C. Cedar blocks... | 4,448.44 | 1,053.57 |
| ..... | O. Vider & Co..... | C. C. Cedar blocks... | 855.96 | 255.93 |
| Nov. 8, 1890 | O. Vider & Co..... | C. W. F. Cedar blocks... | 1,086.06 | 408.70 |
| Oct. 21, 1890 | J. A. Gustafson..... | Curbing and Filling... | ..... | 846.50 |
| Aug. 27, 1890 | P. Farrell..... | C. W. C. Cedar blocks... | 7,086.83 | 1,495.33 |
| Sept. 20, 1890 | P. Farrell..... | C. W. C. Cedar blocks... | 2,473.35 | 474.63 |
| June 20, 1890 | R. F. Conway..... | Cedar blocks..... | 1,411.53 | 331.69 |
| Sept. 1, 1890 | Dolese & Shepard..... | C. C. Macadam..... | 3,160.00 | 948.00 |
| Sept. 1, 1890 | Dolese & Shepard..... | C. C. Macadam..... | 4,230.00 | 1,269.00 |
| Oct. 30, 1890 | O. Vider & Co..... | C. C. Macadam..... | 4,426.31 | 1,244.90 |
| Dec. 1, 1890 | Graceland Cemetery Co..... | C. Macadam..... | 3,017.24 | 848.00 |
| Sept. 30, 1890 | J. B. Smith & Co..... | Stone curbing..... | ..... | 2,101.10 |
| ..... | J. B. Smith & Co..... | Cutting Cedar blocks... | 7,470.40 | 2,101.10 |
| Sept. 15, 1890 | C. B. Parsons..... | C. Macadam..... | 3,361.13 | 1,008.40 |
| Oct. 1, 1890 | C. B. Parsons..... | W. C. C. F. Macadam... | 4,974.33 | 1,476.10 |
| ..... | O. Vider & Co..... | C. Cedar blocks..... | 2,117.78 | 933.00 |
| ..... | Eggleston, Mallette & Brownell | C. C. Macadam..... | 4,300.67 | 1,290.20 |
| ..... | Eggleston, Mallette & Brownell | Macadam..... | 2,873.33 | 712.00 |
| Dec. 1, 1890 | Graceland Cemetery Co..... | C. Macadam..... | 4,497.42 | 1,264.90 |
| Nov. 10, 1890 | C. B. Parsons..... | C. F. Macadam..... | 8,822.20 | 2,205.55 |
| ..... | Dolese & Shepard..... | C. C. Macadam..... | 1,961.67 | 589.50 |
| Aug. 30, 1890 | J. J. Duffy & Co..... | C. Cedar blocks..... | 8,576.68 | 2,573.00 |
| Sept. 10, 1890 | J. B. Smith & Co..... | C. F. Cedar blocks... | 11,728.00 | 2,777.70 |
| Oct. 14, 1890 | J. J. Duffy & Co..... | C. Cedar blocks..... | 10,207.00 | 2,870.70 |
| Aug. 29, 1890 | J. B. Smith & Co..... | Cedar blocks..... | 3,794.28 | 1,138.28 |
| Aug. 16, 1890 | Western Paving Supply Co.. | U. Sq. Ccd. bl. macadam found. | 3,825.30 | 1,006.66 |
| Dec. 4, 1890 | O. Vider & Co..... | C. C. Cedar blocks... | 8,753.43 | 2,461.90 |
| Sept. 10, 1890 | J. B. Smith & Co..... | C. C. Cedar blocks... | 9,670.00 | 2,719.70 |
| Oct. 29, 1890 | Jas. Lyman & Co..... | C. C. Macadam..... | 2,050.00 | 615.00 |
| Oct. 21, 1890 | J. B. Smith & Co..... | C. W. F. Cedar blocks... | 4,004.19 | 948.36 |
| Aug. 14, 1890 | J. B. Smith & Co..... | C. C. F. Cedar blocks... | 16,915.87 | 4,006.39 |

STREETS IMPROVED, NORTH

| NAME OF STREET. | FROM | TO | COMMENCED |
|------------------------|------------------------|-----------------------|---------------|
| Sheffield avenue | Clark | Addison | Nov. 1, 1890 |
| Southport avenue | Fullerton avenue..... | Belmont avenue..... | July 16, 1890 |
| Sulzer | Halsted..... | Sheffield avenue..... | Nov. 1, 1890 |
| Superior | Franklin..... | Kingsbury..... | ..... |
| Tell court..... | Wells..... | Sedgwick..... | Aug. 9, 1890 |
| Twomey | Sedgwick | Hein | Oct. 10, 1890 |
| Wellington..... | Clark..... | Halsted..... | Nov. 10, 1890 |
| Wellington..... | Halsted..... | Sheffield avenue..... | Nov. 11, 1890 |
| Whiting..... | Wells..... | Western terminus..... | June 4, 1890 |
| *Winthrop | Ardmore..... | Thorndale avenue..... | Mar. 1, 1890 |
| *Winthrop | North Fifty-ninth..... | Balmoral avenue..... | Mar. 1, 1890 |
| Wrightwood avenue..... | Orchard..... | Racine..... | June 2, 1890 |

* Private contract.

STREET DEPARTMENT.

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DIVISION, 1890—CONTINUED.

| FINISHED. | CONTRACTOR. | NATURE OF IMPROVEMENT. | SQUARE YARDS. | LINEAL FEET. |
|----------------|------------------------------|------------------------|---------------|--------------|
| Dec. 1, 1890 | C. B. Parsons..... | C. C. Macadam..... | 4,195.45 | 998.86 |
| Aug. 10, 1890 | Garden City Paving & Post Co | W. C. C. Cedar blocks | 23,680.00 | 5,608.42 |
| Nov. 29, 1890 | C. B. Parsons..... | C. C. F. Cedar blocks. | 4,672.23 | 1,401.67 |
| Unfinished ... | J. B. Smith & Co..... | C.W.C.F.Cedar blocks | 1,651.80 | 325.30 |
| Aug. 25, 1890 | J. B. Smith & Co..... | C. C. Cedar blocks... | 1,995.21 | 918.60 |
| Oct. 30, 1890 | J. B. Smith & Co..... | C. C. F. Cedar blocks. | 1,374.56 | 400.00 |
| Nov. 29, 1890 | J. B. Smith & Co..... | C. Cedar blocks..... | 1,078.00 | 321.00 |
| Nov. 29, 1890 | J. B. Smith & Co..... | C. C. Cedar blocks... | 5,499.40 | 1,302.50 |
| June 14, 1890 | O. Vider & Co..... | Cedar blocks..... | 3,974.49 | 941.32 |
| Sept. 1, 1890 | Dolese & Shepard..... | C. C. Macadam..... | 3,160.00 | 948.00 |
| Sept. 1, 1890 | Dolese & Shepard..... | C. C. Macadam..... | 4,230.00 | 1,269.00 |
| July, 14, 1890 | J. B. Smith & Co..... | C. C. Cedar blocks... | 12,262.20 | 3,006.30 |

Lineal feet paving..... 133,040.72 feet, or 25.20 miles.

On unpaved streets, lineal feet curbing, filling, etc.. 6,362.97 feet, or 1.20 miles.

GRAND TOTALS..... 139,403.69 feet, or 26.40 miles.

STREETS IMPROVED,

| NAME OF STREET. | FROM | TO | COMMENCED. |
|--|--------------------------------|----------------------------------|----------------|
| Alley, south E. & W. blk. 13, Ft. Dearborn | Holden place. | Wabash avenue. | Aug. 15, 1890 |
| Alley | Thirty-third to Douglas. | Forrest and Calumet aves | July 10, 1890 |
| Alley | Twenty-ninth to Thirtieth. | Cottage Grove and Groveland aves | June 23, 1890 |
| Alley | Twenty-ninth to Thirtieth. | Indiana and Prairie aves | June 6, 1890 |
| Alley | Thirty-first to Thirty-second. | Prairie and Forrest aves. | June 23, 1890 |
| Alley | Thirty-first to Thirty-second. | Cottage Grove and Groveland aves | June 26, 1890 |
| Alley | Thirty-second to Thirty-third. | Rhodes and Vernon aves | June 25, 1890 |
| Alley | Thirty-first to Thirty-second. | Wabash and Michigan avenues. | June 17, 1890 |
| Alley | Thirty-second to Thirty-third. | Wabash and Michigan avenues. | June 20, 1890 |
| Alley | Twenty-ninth to Thirtieth. | Vernon and Cottage Grove avenues | June 28, 1890 |
| Alley | Thirty-second to Thirty-third. | Rhodes and Cottage Grove avenues | July 10, 1890 |
| Alley | Ray avenue to Gano. | Prairie and Calumet aves | Dec. 1, 1890 |
| Alley | Twenty-ninth to Ray avenue. | Calumet and S. Park aves | June 27, 1890 |
| Alley | Thirtieth to Thirty-first. | S. Park and Vernon aves | May 30, 1890 |
| Alley | Twenty-fifth to Twenty-sixth. | Wabash and Michigan avenues. | June 28, 1890 |
| Alley | Twenty-fifth to Twenty-sixth. | Michigan and Indiana avenues. | ..... |
| Alley | Thirty-first to Thirty-second. | S. Park and Vernon aves | May 26, 1890 |
| Alley | Thirty-second to Thirty-third. | S. Park and Vernon avs. | May 28, 1890 |
| Alley | Twenty-sixth to Twenty-eighth. | Wabash and Michigan avenues. | July 11, 1890 |
| Alley | Thirty-first to Thirty-second. | Cottage Grove and Rhodes avenues | June 7, 1890 |
| Alley | Harrison to Polk. | Fifth ave. and Sherman. | June 16, 1890 |
| Alley | Van Buren to Congress. | Franklin and Fifth ave. | July 1, 1890 |
| Alley | Thirty-first to Thirty-second. | Calumet and S. Park aves | April 24, 1890 |
| Alley | Thirty-second to Thirty-third. | Calumet and S. Park aves | April 29, 1890 |
| Alley | Twenty-eighth to Twenty-ninth. | Wabash and Michigan avenues. | ..... |
| Alley | Fifty-first to Fifty-second. | Woodlawn and Kimbark avenues. | June 23, 1890 |
| *Alley | Fifty-first to Fifty-third. | Lafayette ave. and State | ..... |
| *Alley | Fifty-first to Fifty-third. | Lafayette and Perry aves | ..... |
| Adams. | Michigan avenue. | State | Aug. 18, 1890 |
| *Benton place | Washington. | W. and S. alley. | ..... |
| *Beverly Hills | ..... | ..... | ..... |
| Bond ave. Seventy-first st. Yates et al. | Seventy-fifth | Sixty-seventh. | Sept. 5, 1899 |
| Bonfield | Archer avenue. | Thirty-first. | Oct. 18, 1890 |
| Bowen avenue | Lake avenue | Ellis avenue. | Sept. 26, 1890 |
| Butterfield. | Sixteenth | Twenty-second | July 11, 1890 |
| Calhoun place | Franklin. | Market. | Oct. 24, 1890 |
| *Calhoun place | La Salle. | Clark | ..... |
| *Calhoun place | Dearborn | State | ..... |
| *Calhoun place | Market. | Franklin | ..... |
| *Calumet avenue. | Douglas avenue. | 611 feet south | ..... |
| Clark | Twelfth. | Sixteenth. | Oct. 1, 1890 |
| Cleveland avenue | Wallace. | Winter. | Aug. 9, 1890 |
| *Coles | Eighteenth. | Eighty-first. | May 1, 1890 |
| Couch place. | Clark | Fifth avenue. | Aug. 12, 1890 |
| Clark | Sixteenth | Seventeenth. | Sept. 1, 1890 |
| Couch place. | Franklin. | Market. | Aug. 1, 1890 |
| Ellis avenue. | Fifty-first | Fifty-fifth. | April 15, 1890 |
| *Ellis avenue. | Thirty-third | Sixty-fifth. | Feb. 26, 1890 |
| Eightieth | Illinois Central R. R. | Russell avenue. | May 1, 1890 |

* Private contract.

STREET DEPARTMENT.

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SOUTH DIVISION, 1890.

| FINISHED. | CONTRACTOR. | NATURE OF IMPROVEMENT. | SQUARE YARDS. | LINEAL FEET. |
|----------------|--|---------------------------------|---------------|--------------|
| Aug. 25, 1890 | R. F. Conway | W. C. C. Granite. | 201.85 | 151.00 |
| Aug. 15, 1890 | P. Farrell | W. C. Cedar blocks. | 1,815.59 | 1,140.40 |
| July 11, 1890 | P. Farrell | W. C. Cedar blocks. | 1,236.03 | 794.75 |
| July 18, 1890 | R. F. Conway | W. C. C. Cedar blocks | 1,766.27 | 807.78 |
| July 1, 1890 | P. Farrell | W. C. Cedar blocks. | 900.45 | 599.04 |
| July 1, 1890 | P. Farrell | W. C. C. Cedar blocks | 1,208.51 | 784.00 |
| July 1, 1890 | P. Farrell | W. C. C. Cedar blocks | 1,227.17 | 640.90 |
| July 1, 1890 | P. Farrell | W. C. Cedar blocks. | 1,360.62 | 602.02 |
| July 1, 1890 | P. Farrell | W. C. Cedar blocks. | 1,231.52 | 574.54 |
| July 11, 1890 | P. Farrell | W. C. Cedar blocks. | 1,573.16 | 815.61 |
| Aug. 15, 1890 | P. Farrell | W. C. C. Cedar blocks | 1,232.74 | 646.00 |
| Dec. 4, 1890 | O. Vider & Co. | W. C. C. Cedar blocks | 666.42 | 374.80 |
| July 11, 1890 | P. Farrell | W. C. Cedar blocks. | 817.55 | 516.00 |
| July 18, 1890 | R. F. Conway | W. C. Cedar blocks. | 658.70 | 387.05 |
| July 18, 1890 | R. F. Conway | W. C. C. Cedar blocks | 1,169.32 | 487.00 |
| July 18, 1890 | R. F. Conway | W. C. C. Cedar blocks | 1,058.71 | 600.00 |
| July 18, 1890 | R. F. Conway | W. C. Cedar blocks. | 1,163.02 | 597.60 |
| July 18, 1890 | R. F. Conway | W. C. C. Cedar blocks | 1,235.86 | 646.00 |
| July 18, 1890 | R. F. Conway | W. C. C. Cedar blocks | 2,347.89 | 1,027.51 |
| Sept. 8, 1890 | J. V. McAdam | W. C. C. Cedar blocks | 593.25 | 346.70 |
| July 2, 1890 | J. B. Smith & Co. | W. C. C. Cedar blocks | 863.47 | 792.86 |
| July 7, 1890 | Sackley and Peterson | W. C. C. Cedar blocks | 586.59 | 434.80 |
| April 26, 1890 | O. Vider & Co. | W. C. C. Cedar blocks | 967.78 | 603.50 |
| April 29, 1890 | O. Vider & Co. | W. C. C. Cedar blocks | 899.72 | 595.40 |
| | R. F. Conway | W. C. C. Cedar blocks | 326.66 | 315.50 |
| Aug. 16, 1890 | R. F. Conway | W. C. Cedar blocks | 976.84 | 448.50 |
| | Eggleston, Mallette & Brownell | W. C. Macadam. | 2,300.00 | 1,300.00 |
| | Eggleston, Mallette & Brownell | W. C. Macadam. | 2,300.00 | 1,300.00 |
| Nov. 1, 1890 | R. F. Conway | Granite | 1,789.26 | 729.69 |
| | | Granite. | 337.78 | 152.00 |
| | Eggleston, Mallette & Brownell | C. C. Macadam. | 35,200.00 | 10,560.00 |
| Unfinished | E. G. Minnick | W. C. Macadam. | 23,156.00 | 5,600.00 |
| Dec. 1, 1890 | P. Farrell | C. W. F. Cedar blocks | 6,079.84 | 1,823.95 |
| Oct. 10, 1890 | Dolese & Shepard. | Macadam | 1,505.00 | 437.00 |
| July 30, 1890 | P. Farrell | G. Cedar blocks. | 10,029.62 | 2,371.88 |
| Nov. 7, 1890 | R. F. Conway | Granite | 311.67 | 156.65 |
| | | Sheet Asphalt. | 238.00 | 119.00 |
| | | Sheet Asphalt. | 160.00 | 80.00 |
| | | Sheet Asphalt. | 370.00 | 185.00 |
| | | Sheet Asphalt. | 2,036.87 | 611.00 |
| Oct. 30, 1890 | R. F. Conway | Granite | 5,864.81 | 2,609.60 |
| Oct. 1, 1890 | B. B. Parsons | C. F. Macadam. | 2,606.80 | 617.40 |
| July 21, 1890 | Dolese & Shepard. | W. C. Macadam. | 2,150.00 | 645.00 |
| Aug. 25, 1890 | James Conlon | Granite. | 1,259.68 | 645.20 |
| Sept. 26, 1890 | James Conlon | Granite. | 1,625.01 | 457.03 |
| Aug. 15, 1890 | James Conlon | Granite. | 638.85 | 322.00 |
| July 8, 1890 | O. Vider & Co. | W. C. Macadam. | 10,070.00 | 2,620.00 |
| April 20, 1890 | Eggleston, Mallette & Brownell | W. C. Macadam. | 4,200.00 | 1,260.00 |
| July 21, 1890 | Dolese & Shepard. | W. C. Macadam. | 4,870.00 | 1,311.00 |

STREETS IMPROVED, SOUTH

| NAME OF STREET. | FROM | TO | COMMENCED. |
|----------------------|------------------------------------|--------------------------|----------------|
| *Eighty-ninth | The Strand | Mackinaw | Sept. 15, 1890 |
| Eighty-third | Baltimore & Ohio R. R. | French avenue | Sept. 26, 1890 |
| Eightieth court | Illinois Central R. R. | Houston avenue | May 1, 1890 |
| Eighty-first | Illinois Central R. R. | Houston avenue | May 1, 1890 |
| Emerald avenue | Sixty-seventh | Sixty-ninth | April 4, 1890 |
| Emerald avenue | Twenty-sixth | Archer avenue | May 30, 1890 |
| Emerald avenue | Twenty-ninth | Thirty-first | |
| Emerald avenue | Thirty-first | Egan avenue | |
| Emerald avenue | Seventy-seventh | Seventy-ninth | |
| Ellis avenue | Thirty-fifth | Egan avenue | Sept. 11, 1890 |
| *Euclid avenue | Seventy-first | Seventy-third | May 6, 1890 |
| Evans avenue | Forty-third | Forty-fourth | April 6, 1890 |
| Evans avenue | Forty-second | Forty-third | June 16, 1890 |
| *Everett avenue | Fifty-sixth | N. line Ill. Cent. R. R. | June 23, 1890 |
| *Fifty-second | Lake avenue | Drexel avenue | June 11, 1890 |
| *Fifth-sixth | East End avenue | Lake Michigan | June 23, 1890 |
| *Forrestville | Forty-third | Forty-fourth | Sept. 12, 1890 |
| *Forty-seventh court | Cottage Grove avenue | Alley east | Oct. 16, 1890 |
| Fortieth | Vincennes avenue | Langley avenue | May 22, 1890 |
| Forty-second | Cottage Grove avenue | Langley avenue | May 22, 1890 |
| Forty-second | Langley avenue | Vincennes av. | May 22, 1890 |
| *Green | Seventy-seventh | Seventy-ninth | |
| *Greenwood avenue | Sixty-third | Sixty-fifth | May 19, 1890 |
| Halsted | Thirty-ninth | Sixty-ninth | Oct. 20, 1890 |
| Halsted | 480 feet south of southwest corner | Archer and Egan aves. | Sept. 18, 1890 |
| Hanover | Twenty-ninth | Thirty-third | Oct. 10, 1890 |
| Hegewisch avenue | Hundred and Thirty-first | Howard avenue | Sept. 19, 1890 |
| *Hegewisch avenue | Eighteenth | Eighty-first | May 1, 1890 |
| Hickory | Main | Lock | July 1, 1890 |
| *Houston | Eighteenth | Eighty-first | May 1, 1890 |
| Iglehart place | Twenty-seventh | Southern terminus | Oct. 1, 1890 |
| *Jefferson avenue | Ninety-second | Ninety-third | Sept. 9, 1890 |
| Keeley | Archer avenue | Thirty-first | July 7, 1890 |
| *Kenwood avenue | Euclid avenue | Jeffery avenue | May 6, 1890 |
| Kimbark avenue | Forty-seventh | Forty-eighth | April 25, 1890 |
| *Lafayette avenue | Seventy-first | Seventy-third | |
| Lake avenue | Fifty-first | Fifty-seventh | Sept. 22, 1890 |
| Lake Park avenue | Twenty-ninth | Thirty-first | Dec. 2, 1890 |
| La Salle | Archer avenue | Twenty-sixth | Sept. 18, 1890 |
| Lock | Archer avenue | Thirty-first | |
| Napoleon place | Stewart avenue | Wallace | Oct. 12, 1890 |
| Napoleon place | Wentworth avenue | Stewart avenue | June 6, 1890 |
| Nineteenth | Clark | State | Sept. 6, 1890 |
| Ninety-third | Stony Island avenue | Jefferson avenue | Aug. 21, 1890 |
| Oakwood avenue | Cottage Grove avenue | N. line, Sec. 2, 38, 14 | May 19, 1890 |
| Pacific avenue | Van Buren | Harrison | Oct. 15, 1890 |
| *Peoria | Seventy-seventh | Seventy-ninth | |
| *Perry avenue | Seventy-first | Seventy-third | |
| Railroad avenue | Seventy-ninth | Eightieth | May 1, 1890 |

* Private contract.

STREET DEPARTMENT.

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DIVISION, 1890—CONTINUED.

| FINISHED. | CONTRACTOR. | NATURE OF IMPROVEMENT. | SQUARE YARDS. | LINEAL FEET. |
|----------------|----------------------------------|------------------------------------|---------------|--------------|
| Unfinished | Illinois Steel Co. | W. C. Macadam. | 2,667.00 | 500.00 |
| Nov. 17, 1890 | Dolese & Shepard. | Macadam. | 3,706.00 | 1,853.00 |
| July 21, 1890 | Dolese & Shepard. | W. C. Macadam. | 970.00 | 291.00 |
| July 21, 1890 | Dolese & Shepard. | W. C. Macadam. | 1,133.00 | 340.00 |
| July 1, 1890 | T. Kelly & Co. | Macadam. | 4,300.00 | 1,290.00 |
| Aug. 7, 1890 | P. Farrell. | C. F. Cedar blocks. | 2,984.12 | 746.08 |
| May 15, 1890 | R. F. Conway. | C. W. P. Cedar blocks. | 5,889.92 | 1,549.98 |
| | | | 22,238.99 | 5,267.13 |
| | Eggleston, Mallette & Brownell | C. Macadam. | 4,333.00 | 1,300.00 |
| Oct. 29, 1890 | Barber Asphalt Paving Co. | Sheet asphalt on old macadam. | 9,173.45 | 2,753.45 |
| July 1, 1890 | Dolese & Shepard. | W. C. Macadam. | 4,217.00 | 1,265.00 |
| Aug. 15, 1890 | Dolese & Shepard. | W. C. Macadam. | 2,825.00 | 748.00 |
| Aug. 16, 1890 | R. F. Conway. | C. Cedar blocks. | 2,217.56 | 587.00 |
| Sept. 12, 1890 | Dolese & Shepard. | C. Macadam. | 4,390.00 | 1,162.00 |
| Aug. 25, 1890 | Dolese & Shepard. | W. C. Macadam. | 2,230.00 | 590.00 |
| Sept. 12, 1890 | Dolese & Shepard. | C. Macadam. | 2,230.00 | 590.00 |
| Nov. 16, 1890 | Eggleston, Mallette & Brownell | C. Macadam. | 2,020.00 | 606.00 |
| Nov. 1, 1890 | Dolese & Shepard. | W. C. Macadam. | 750.00 | 241.00 |
| Oct. 31, 1890 | Dolese & Shepard. | W. C. Macadam. | 3,147.50 | 833.00 |
| Aug. 28, 1890 | Kimball & Cobb Stone Co. | C. Macadam. | 2,593.00 | 686.00 |
| Aug. 23, 1890 | Kimball & Cobb Stone Co. | | 4,586.00 | 1,214.00 |
| | Kimball & Cobb Stone Co. | C. Macadam. | 4,250.00 | 1,275.00 |
| June 19, 1890 | Dolese & Shepard. | C. Macadam. | 4,594.00 | 1,292.00 |
| Unfinished | Garden City Paving & Post Co. | W. C. Cedar blocks. | 40,698.00 | 20,875.00 |
| Oct. 21, 1890 | Garden City Paving & Post Co. | F. Cedar blocks. | 25,142.41 | 8,289.86 |
| Nov. 54, 1890 | R. F. Conway. | C. F. Cedar blocks. | 11,048.90 | 2,616.84 |
| Nov. 5, 1890 | Kimball & Cobb Stone Co. | Macadam. | 4,623.00 | 3,213.00 |
| July 21, 1890 | Dolese & Shepard. | W. C. Macadam. | 2,157.00 | 647.00 |
| Oct. 21, 1890 | Garden City Paving & Post Co. | C. F. Cedar blocks. | 9,736.82 | 2,806.08 |
| July 21, 1890 | Dolese & Shepard. | W. C. Macadam. | 2,110.00 | 633.00 |
| Oct. 29, 1890 | Garden City Paving & Post Co. | C. G. Cedar blocks. | 1,133.48 | 818.77 |
| Sept. 15, 1890 | Kimball & Cobb Stone Co. | Macadam. | 1,200.00 | 600.00 |
| July 18, 1890 | Garden City Paving & Post Co. | C. F. Cedar blocks. | 6,745.97 | 2,000.45 |
| July 1, 1890 | Dolese & Shepard. | W. C. Macadam. | 1,483.00 | 446.40 |
| June 18, 1890 | Dolese & Shepard. | C. Macadam. | 2,399.00 | 621.00 |
| | Eggleston, Mallette & Brownell | C. Macadam. | 4,333.00 | 1,300.00 |
| Unfinished | Kimball Cobb Stone Co. | W. C. Brick pave. | 8,600.00 | 2,000.00 |
| Dec. 20, 1890 | R. F. Conway. | Cedar blocks. | 5,188.12 | 1,437.50 |
| Dec. 10, 1890 | R. F. Conway. | C. F. Cedar blocks. | 12,504.72 | 2,966.93 |
| Aug. 11, 1890 | J. V. McAdam. | C. F. Cedar blocks. | 3,857.75 | 866.30 |
| Oct. 21, 1890 | Garden City Paving & Post Co. | C. F. Cedar blocks. | 4,701.18 | 1,113.44 |
| Sept. 15, 1890 | Western Paving & Supply Co. | C. F. Cedar blocks. | 4,484.07 | 1,062.02 |
| Oct. 9, 1890 | Western Paving & Supply Co. | C. F. Cedar blocks. | 2,621.41 | 600.60 |
| Sept. 9, 1890 | Dolese & Shepard. | Macadam. | 1,350.00 | 675.00 |
| July 1, 1890 | J. J. Duffy & Co. | C. G. Cedar blocks. | 2,786.64 | 627.00 |
| Nov. 7, 1890 | James Conlon. | Granite. | 2,787.30 | 802.00 |
| | Kimball & Cobb Stone Co. | C. Macadam. | 4,250.00 | 1,275.00 |
| | Eggleston, Mallette & Brownell | C. Macadam. | 4,333.00 | 1,300.00 |
| July 21, 1890 | Dolese & Shepard. | W. C. Macadam. | 2,706.00 | 641.00 |

STREETS IMPROVED, SOUTH

| NAME OF STREET. | FROM | TO | COMMENCED. |
|---------------------------|----------------------------|---------------------------|----------------|
| Root. | State. | Halsted. | Sept. 8, 1890 |
| *Russell avenue. | Eighteenth. | Eighty-first. | May 1, 1890 |
| *Sangamon. | Seventy-seventh. | Seventy-ninth. .... | ..... |
| *Seventy-eighth. | Halsted. | Morgan. .... | ..... |
| Seventy-second. | State. | Vincennes avenue. .... | ..... |
| Seventy-fifth. | French avenue. | Stony Island avenue. | Nov. 10, 1889 |
| Seventy-seventh. | Lake avenue. | French avenue. | April 16, 1890 |
| Seventy-eighth. | Railroad avenue. | Lake Michigan. | Sept. 22, 1890 |
| Seventy-ninth. | Lake Michigan. | B. & O. R. R. | May 26, 1890 |
| Seventy-ninth place. | Railroad avenue. | Coles avenue. | May 1, 1890 |
| Shields avenue. | Twenty-sixth. | Thirty-first. .... | ..... |
| Sixty-first. | State. | Grand boulevard. | June 6, 1890 |
| Sixty-third. | Cottage Grove avenue. | Stony Island avenue. | Oct. 15, 1890 |
| Sixty-eighth. | Wentworth avenue. | Yale. | July 25, 1890 |
| Sixty-ninth. | Vincennes avenue. | Halsted. | Nov. 4, 1889 |
| Sixty-ninth. | State. | Indiana avenue. | Sept. 15, 1890 |
| Stewart avenue. | Alexander. | Egan avenue. | July 1, 1890 |
| Stony Island avenue. | Ninety-second. | Ninty-fifth. | May 8, 1890 |
| The Strand. | Harbor avenue. | Eighty-ninth. | Sept. 15, 1890 |
| Thirtieth. | Wentworth avenue. | Stewart avenue. | Aug. 4, 1890 |
| Thirty-second. | Laurel. | Ullman. | July 1, 1890 |
| Thirty-fourth. | Cottage Grove avenue. | Rhodes avenue. .... | ..... |
| Thirty-fourth. | Halsted. | Laurel. | July 1, 1890 |
| Thirty-sixth. | State. | Indiana avenue. | June 2, 1890 |
| Thirty-sixth. | Cottage Grove avenue. | Ellis avenue. | July 2, 1890 |
| Thirty-eighth. | Wabash avenue. | Wentworth avenue. | May 15, 1890 |
| Twenty-third. | State. | Wentworth avenue. | July 7, 1890 |
| Twenty-seventh. | State. | Portland avenue. | May 1, 1890 |
| Twenty-ninth. | Hanover. | Halsted. | Oct. 10, 1890 |
| Twenty-ninth. | Stewart avenue. | Hanover. | Aug. 21, 1890 |
| Vernon avenue. | Thirty-seventh. | Egan avenue. | Oct. 25, 1890 |
| *Wharton avenue. | Sixty-third. | Sixty-fifth. | Feb. 26, 1890 |
| Woodlawn avenue. | Sixtieth. | Sixty-seventh. | July 18, 1890 |
| *Wright. | Seventy-third. | Seventy-fifth. .... | ..... |
| Yale. | Seventy-third. | Seventy-fourth. | |

* Private contract.

STREET DEPARTMENT.

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DIVISION, 1890—CONTINUED.

| FINISHED. | CONTRACTOR. | NATURE OF IMPROVEMENT. | SQUARE YARDS. | LINEAL FEET. |
|----------------|--------------------------------------|--------------------------|---------------|--------------|
| Oct. 12, 1890 | J. B. Smith & Co | C. Cedar blocks | 15,065.93 | 5,237.00 |
| July 21, 1890 | Dolese & Shepard | W. C. Macadam | 2,103.00 | 631.00 |
| ..... | Kimball & Cobb Stone Co | C. Macadam | 4,250.00 | 1,275.00 |
| ..... | Eggleston, Mallette & Brownell | C. Macadam | 3,810.00 | 1,148.00 |
| ..... | Eggleston, Mallette & Brownell | C. Macadam | 3,333.00 | 1,000.00 |
| July 1, 1890 | Dolese & Shepard | Macadam | 13,248.00 | 6,624.00 |
| Unfinished | G. K. Ferris | W. C. Macadam | 6,853.00 | 3,429.00 |
| Nov. 1, 1890 | Dolese & Shepard | G. Macadam | 2,762.00 | 1,381.00 |
| Unfinished | James Wallace | Wood Box Drain ..... | ..... | 5,500.00 |
| July 21, 1890 | Dolese & Shepard | W. C. Macadam | 1,977.00 | 593.00 |
| Unfinished | P. Farrell | C. F. Cedar blocks | 11,819.27 | 2,800.00 |
| Aug. 5, 1890 | R. F. Conway | C. Cedar blocks | 8,467.00 | 2,600.00 |
| Unfinished | Kimball & Cobb Stone Co | W. C. Macadam | 8,000.00 | 2,000.00 |
| Oct. 1, 1890 | C. B. Parsons | C. F. Macadam | 1,267.00 | 300.00 |
| Sept. 1, 1890 | John Bourke | C. F. Macadam | 15,000.00 | 4,692.00 |
| Oct. 31, 1890 | Dolese & Shepard | C. F. Macadam | 2,555.20 | 1,277.60 |
| Sept. 22, 1890 | R. F. Conway | C. Cedar blocks | 25,257.75 | 10,103.56 |
| June 17, 1890 | Kimball & Cobb Stone Co | Macadam | 3,794.00 | 1,897.00 |
| Dec. 31, 1890 | Illinois Steel Co | W. C. Macadam | 6,933.00 | 1,300.00 |
| Oct. 2, 1890 | J. B. Smith & Co | C. F. Cedar blocks | 4,476.72 | 1,177.98 |
| July 30, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks | 5,721.47 | 1,460.35 |
| ..... | ..... | C. F. Cedar blocks | 2,700.00 | 640.00 |
| July 10, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks | 5,612.19 | 1,330.00 |
| Aug. 12, 1890 | P. Farrell | C. G. Cedar blocks | 3,490.27 | 1,015.88 |
| July 30, 1890 | P. Farrell | C. G. Cedar blocks | 930.00 | 276.00 |
| June 23, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks | 5,846.55 | 1,384.90 |
| Sept. 15, 1890 | J. V. McAdam | C. F. Cedar blocks | 14,072.00 | 3,264.20 |
| June 23, 1890 | Garden City Paving & Post Co | C. G. Cedar blocks | 6,541.20 | 1,578.87 |
| Nov. 24, 1890 | R. F. Conway | C. F. Cedar blocks | 9,189.69 | 2,123.87 |
| Oct. 2, 1890 | J. B. Smith & Co | C. F. Cedar blocks | 901.97 | 208.50 |
| Nov. 6, 1890 | P. Farrell | C. F. Cedar blocks | 5,420.90 | 1,288.90 |
| April 20, 1890 | Eggleston, Mallette & Brownell | W. C. Macadam | 4,200.00 | 1,260.00 |
| May 15, 1890 | Eggleston, Mallette & Brownell | W. C. Macadam | 5,810.00 | 1,538.00 |
| ..... | Eggleston, Mallette & Brownell | C. Macadam | 4,333.00 | 1,300.00 |
| ..... | Eggleston, Mallette & Brownell ..... | ..... | 2,333.00 | 700.00 |

Lineal feet paving..... 206,786.67 feet, or 39.16 miles.

On unpaved streets, lineal feet curbing, filling, etc.. 5,500.00 feet, or 1.04 miles.

GRAND TOTALS..... 212,286.67 feet, or 40.20 miles.

STREETS IMPROVED

| NAME OF STREET. | FROM | TO | COMMENCE |
|------------------------------|-------------------------------|---------------------------|---------------|
| Alley E, block 24 | Jackson to Van Buren.. | Aberdeen and Centre ave | Dec. 1, 189 |
| Alleys | Wood to Paulina..... | Monroe and Adams..... | July 24, 189 |
| Alley, block 46 | Washington to Randolph | Clinton and Jefferson... | Dec. 19, 189 |
| Alley..... | Oakley to Western ave. | Lake and Walnut..... | Aug. 10, 189 |
| Alley, 200 ft. E. Homan ave. | Washington boulevard.. | Warren avenue..... | Nov. 7, 189 |
| Alley..... | Paulina to Wood..... | Lake and Walnut..... | Aug. 30, 189 |
| Alley..... | Lincoln to Wood..... | Walnut and Fulton..... | Sept. 11, 189 |
| Alley..... | Centre avenue to Throop | Adams and Jackson..... | May 8, 189 |
| Alley, block 3, section 17.. | Throop to Centre avenue | Madison and Monroe... | Oct. 1, 189 |
| Alley..... | Randolph to Lake..... | Canal and Clinton..... | Sept. 1, 189 |
| Alleys, W. ½, blks. 21 & 30. | Newberry ave. to Johnson | Taylor and Twelfth..... | Nov. 15, 189 |
| Alleys, E. ½, blks. 21 & 30. | Halsted to Newberry ave | Twelfth and Taylor.... | Sept. 29, 189 |
| Alley, blocks 53 and 54 ... | Harrison to Van Buren. | Canal and Clinton..... | Oct. 6, 189 |
| Alley, block 42 | Leavitt to Oakley..... | Lake and Walnut..... | Sept. 25, 189 |
| Alley..... | Ashland ave. to Paulina | Madison and Warren ave | May 23, 189 |
| Alley, block 9, C. T. sub.. | Loomis to Lafin..... | Monroe and Adams..... | May 27, 189 |
| Alley..... | Winchester avenue to Robey. | Monroe and Adams..... | May 28, 189 |
| Alley, W. of Robey..... | Division to Evergreen avenue. | Robey and Hoyne ave.. | Oct. 23, 189 |
| Alley..... | Chicago to Centre ave. | Milwaukee ave..... | Aug. 15, 189 |
| Alley..... | Indiana..... | Peoria..... | Oct. 9, 189 |
| Alley..... | Evergreen ave. to Robey | Fowler and Evergreen ave. | Oct. 24, 189 |
| *Alley, E. of Canal..... | Judd to Wilson..... | Canal and Stewart ave. | Nov. 5, 189 |
| *Alley, E. of Canal..... | Judd to Wilson..... | Canal and Stewart ave. | Nov. 5, 189 |
| Aberdeen | Damen..... | Taylor..... | June 20, 189 |
| Ada | Pan Handle R. R. | C. & N.-W. Ry..... | Sept. 11, 189 |
| Albany avenue..... | Lake..... | Kinzie..... | Oct. 3, 189 |
| Armitage avenue..... | Milwaukee avenue..... | California avenue..... | May 1, 189 |
| Armour | Kinzie..... | Ohio..... | Mar. 20, 189 |
| Ashland avenue..... | Robey..... | Olive..... | Oct. 30, 189 |
| Avon place..... | Hoyne avenue..... | Western terminus..... | June 3, 189 |
| Bickerdike square..... | Bickerdike..... | Armour..... | Oct. 1, 189 |
| Blanche..... | Noble..... | Fleetwood..... | Aug. 21, 189 |
| California avenue..... | Division..... | Chicago avenue..... | ..... |
| California avenue..... | Twelfth..... | Ogden avenue..... | June 2, 189 |
| California avenue..... | Division..... | North avenue..... | Aug. 21, 189 |
| California avenue..... | Twenty-second..... | Twenty-sixth..... | ..... |
| California avenue..... | Ogden avenue..... | Twenty-second..... | July 26, 189 |
| California avenue..... | North avenue..... | Milwaukee avenue..... | Sept. 19, 189 |
| Campbell avenue..... | Polk..... | Twelfth..... | Oct. 16, 189 |
| Canal | Harrison..... | Twelfth..... | Aug. 20, 189 |
| Canal..... | Lake..... | Fulton..... | Nov. 7, 189 |
| Central Park avenue..... | Ogden avenue..... | Twenty-second..... | ..... |
| Central Park avenue..... | Ogden avenue..... | Fifteenth..... | ..... |
| Central Park avenue..... | Fifteenth..... | Douglas Park boulevard | ..... |
| Chapin..... | Noble..... | C. & N.-W. Ry..... | Oct. 17, 189 |
| Clinton | Randolph..... | Fulton..... | Sept. 1, 189 |
| Clybourn place | Ashland avenue..... | Robey..... | ..... |
| Crystal place | Leavitt..... | Eastern terminus..... | Aug. 23, 189 |
| Currier..... | Augusta..... | Chapin..... | Sept. 9, 189 |

* Private contract.

WEST DIVISION, 1890.

| FINISHED. | CONTRACTOR. | NATURE OF IMPROVEMENT. | SQUARE YARDS. | LINEAL FEET. |
|----------------|------------------------------|------------------------|---------------|--------------|
| Dec. 6, 1890 | R. F. Conway | W. C. Cedar blocks... | 881.80 | 396.81 |
| July 28, 1890 | R. F. Conway | W. C. C. Cedar blocks | 2,802.30 | 880.00 |
| Dec. 24, 1890 | O. Vider & Co. | W. C. Cedar blocks... | 744.98 | 372.50 |
| Aug. 14, 1890 | O. Vider & Co. | W. C. C. Cedar blocks | 988.09 | 608.06 |
| Nov. 12, 1890 | J. V. McAdam | W. C. Cedar blocks... | 561.47 | 252.66 |
| Sept. 15, 1890 | J. V. McAdam | W. C. C. Cedar blocks | 891.56 | 598.80 |
| Sept. 18, 1890 | J. V. McAdam | W. C. Cedar blocks... | 751.32 | 608.74 |
| June 7, 1890 | J. V. McAdam | W. C. C. Cedar blocks | 1,212.21 | 595.50 |
| Oct. 3, 1890 | Western Paving & Supply Co. | W. C. C. Cedar blocks | 1,357.27 | 723.40 |
| Sept. 3, 1890 | Western Paving & Supply Co. | W. C. Cedar blocks... | 779.69 | 389.85 |
| Nov. 26, 1890 | P. Farrell | W. C. C. Cedar blocks | 1,511.67 | 1,002.50 |
| Oct. 11, 1890 | P. Farrell | W. C. C. Cedar blocks | 1,585.96 | 1,005.00 |
| Oct. 17, 1890 | P. Farrell | W. C. C. Cedar blocks | 1,590.62 | 798.00 |
| Oct. 3, 1890 | P. Farrell | W. C. C. Cedar blocks | 1,032.27 | 580.60 |
| June 6, 1890 | P. Farrell | W. C. C. Cedar blocks | 1,033.44 | 597.50 |
| June 10, 1890 | P. Farrell | W. C. C. Cedar blocks | 1,369.75 | 733.70 |
| June 10, 1890 | P. Farrell | W. C. C. Cedar blocks | 861.11 | 267.00 |
| Nov. 5, 1890 | P. Farrell | W. C. C. Cedar blocks | 842.59 | 505.50 |
| Aug. 18, 1890 | O. Vider & Co. | W. C. C. Cedar blocks | 647.98 | 492.00 |
| Oct. 25, 1890 | J. V. McAdam | W. C. C. Cedar blocks | 603.93 | 308.70 |
| Oct. 27, 1890 | J. V. McAdam | W. C. C. Cedar blocks | 860.28 | 503.00 |
| | J. V. McAdam | W. C. C. Granite | 457.11 | 242.00 |
| | J. V. McAdam | W. C. C. Cedar blocks | 544.00 | 288.00 |
| June 30, 1890 | Western Paving & Supply Co. | C. F. Cedar blocks... | 1,753.59 | 415.32 |
| Sept. 30, 1890 | J. A. Gustafson | C. C. Cedar blocks... | 599.34 | 141.90 |
| Nov. 19, 1890 | O. Vider & Co. | C. F. Cedar blocks... | 5,220.66 | 1,367.86 |
| July 29, 1890 | J. J. Duffy & Co. | C. C. Cedar blocks... | 5,781.95 | 2,365.30 |
| May 14, 1890 | O. Vider & Co. | C. C. Cedar blocks... | 4,856.61 | 1,150.20 |
| Dec. 12, 1890 | P. Farrell | Curbing and Filling | | 885.80 |
| July 3, 1890 | Garden City Paving & Post Co | C. C. Cedar blocks... | 2,284.25 | 529.16 |
| Oct. 24, 1890 | R. F. Conway | C. C. Cedar blocks... | 1,025.06 | 384.00 |
| Nov. 11, 1890 | Garden City Paving & Post Co | C. W. F. Cedar blocks | 8,823.27 | 905.50 |
| Unfinished. | Western Paving & Supply Co. | Curbing | | 2,600.00 |
| Sept. 23, 1890 | Carden & Crowley | C. F. Cedar blocks... | 7,748.52 | 1,830.60 |
| Oct. 25, 1890 | Western Paving & Supply Co. | C. C. Cedar blocks... | 14,656.82 | 2,478.10 |
| Unfinished. | Carden & Crowley | C. Filling | | 2,600.00 |
| Oct. 2, 1890 | Carden & Crowley | C. F. Cedar blocks... | 14,485.13 | 3,430.69 |
| Nov. 21, 1890 | J. B. Smith & Co. | C. F. Cedar blocks... | 15,447.90 | 5,528.00 |
| Dec. 1, 1890 | R. F. Conway | C. Cedar blocks... | 5,919.33 | 1,775.80 |
| Sept. 2, 1890 | Garden City Paving & Post Co | C. W. Cedar blocks... | 10,107.30 | 2,842.70 |
| Nov. 19, 1890 | O. Vider & Co. | C. C. Cedar blocks... | 1,922.52 | 360.47 |
| Unfinished. | J. V. McAdam | Curbing and Filling | | 955.00 |
| Dec. 1, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks... | 6,600.00 | 1,650.00 |
| Unfinished. | Garden City Paving & Post Co | Curbing and Filling | | 1,240.00 |
| Nov. 6, 1890 | J. J. Duffy & Co. | C. C. Cedar blocks... | 2,509.03 | 594.20 |
| Sept. 6, 1890 | O. Vider & Co. | W. C. Cedar blocks... | 2,792.85 | 785.49 |
| | R. F. Conway | C. F. Cedar blocks... | 12,647.47 | 2,518.50 |
| Sept. 15, 1890 | R. F. Conway | C. F. Cedar blocks... | 5,681.96 | 1,704.50 |
| Sept. 25, 1890 | J. B. Smith & Co. | C. Cedar blocks... | 8,889.39 | 802.70 |

STREETS IMPROVED, WEST

| NAME OF STREET. | FROM | TO | COMMENCED. |
|---------------------------|-------------------------------|-------------------------|----------------|
| Curtis..... | Huron..... | May..... | Sept. 13, 1890 |
| Davis..... | North avenue..... | Wabansia avenue..... | Aug. 1, 1890 |
| Davis..... | Division..... | North avenue..... | Oct. 13, 1890 |
| Dean..... | Paulina..... | Brigham..... | Nov. 6, 1890 |
| Desplaines..... | Adams..... | Harrison..... | Aug. 20, 1890 |
| Desplaines..... | Polk..... | Harrison..... | Aug. 23, 1890 |
| Division..... | Western avenue..... | Sacramento avenue..... | Sept. 5, 1890 |
| Dudley..... | Chicago avenue..... | Augusta..... | June 10, 1890 |
| Dudley..... | Augusta..... | Division..... | June 10, 1890 |
| Dudley..... | North avenue..... | Armitage..... | |
| Elk..... | Paulina..... | Bauwans..... | Sept. 18, 1890 |
| Eighteenth..... | Leavitt..... | Western avenue..... | Sept. 16, 1889 |
| Eleventh..... | Morgan..... | Blue Island avenue..... | July 27, 1890 |
| Emily..... | Ashland avenue..... | Wood..... | Sept. 16, 1890 |
| Elston avenue..... | Armitage avenue..... | Fullerton avenue..... | Aug. 5, 1890 |
| Elston avenue..... | Fullerton avenue..... | Snow..... | May 1, 1890 |
| Fairfield avenue..... | Twelfth..... | Ogden avenue..... | Apr. 28, 1890 |
| Fairfield avenue..... | Lake..... | C. & N.-W. Ry..... | |
| Fifteenth..... | Morgan..... | Centre avenue..... | June 2, 1890 |
| Fifteenth..... | Western avenue..... | California avenue..... | |
| Flournoy..... | Rockwell..... | Washtenaw avenue..... | Oct. 20, 1890 |
| *Forty-seventh, West..... | Van Buren..... | Jackson..... | |
| Francisco..... | Monroe..... | Van Buren..... | July 3, 1890 |
| Francisco..... | Lake..... | Carroll..... | Oct. 13, 1890 |
| Francisco..... | Lake..... | Kinzie..... | Oct. 15, 1890 |
| Fulton..... | Kedzie avenue..... | Homan avenue..... | Sept. 11, 1890 |
| Gilpin place..... | Sibley..... | Lytle..... | Nov. 18, 1890 |
| Girard..... | Milwaukee avenue..... | Armitage avenue..... | Sept. 15, 1889 |
| Gold..... | Harrison..... | Gurley..... | Aug. 25, 1890 |
| Green..... | Fulton..... | Kinzie..... | Aug. 21, 1890 |
| Halsted..... | Sixteenth street viaduct..... | Canalport avenue..... | Sept. 17, 1890 |
| Harrison..... | Rockwell..... | California avenue..... | April 1, 1890 |
| Henry..... | Ashland avenue..... | Wood..... | May 20, 1890 |
| Hinman..... | Robey..... | Western avenue..... | Oct. 1, 1889 |
| Holt..... | Chicago avenue..... | Augusta..... | Sept. 4, 1890 |
| Hoyne avenue..... | Twelfth..... | Thirteenth..... | Sept. 18, 1890 |
| Hoyne avenue..... | West Twenty-second..... | Blue Island avenue..... | Aug. 16, 1890 |
| Irving avenue..... | Fulton..... | Kinzie..... | Oct. 30, 1890 |
| Irving avenue..... | Fulton..... | Kinzie..... | Nov. 1, 1889 |
| *Jackson..... | Forty-sixth..... | Forty-seventh..... | |
| Jane..... | Robey..... | Hoyne avenue..... | Oct. 21, 1890 |
| Jefferson..... | Madison..... | Kinzie..... | Aug. 14, 1890 |
| Jefferson..... | Harrison..... | Twelfth..... | June 17, 1890 |
| Jefferson..... | Sixteenth..... | Twenty-second..... | June 12, 1890 |
| Johnson..... | Wright..... | Sixteenth..... | June 2, 1890 |
| Julian..... | Ashland avenue..... | Wood..... | Aug. 5, 1890 |
| *Judd..... | Canal..... | Stewart avenue..... | |
| Keenon..... | Ashland avenue..... | Wood..... | June 5, 1890 |
| Lafin..... | Fourteenth..... | Sixteenth..... | |

* Private contract.

STREET DEPARTMENT.

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DIVISION, 1890—CONTINUED.

| FINISHED. | CONTRACTOR. | NATURE OF IMPROVEMENT. | SQUARE YARDS. | LINEAL FEET. |
|----------------|---|------------------------|---------------|--------------|
| Sept. 30, 1890 | P. Farrell | W. C. Cedar blocks | 2,395.82 | 718.75 |
| Aug. 18, 1890 | J. B. Smith & Co | C. F. Cedar blocks | 2,683.54 | 638.90 |
| Nov. 27, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks | 8,774.77 | 2,632.00 |
| Nov. 18, 1890 | P. Farrell | Curbing and Filling | | 399.00 |
| Sept. 6, 1890 | J. V. McAdam | C. F. Cedar blocks | 6,898.87 | 1,940.31 |
| Sept. 29, 1890 | J. J. Duffy & Co | C. G. Cedar blocks | 3,445.89 | 461.40 |
| Oct. 4, 1890 | Garden City Paving & Post Co | Cedar blocks | 18,608.81 | 4,010.00 |
| July 28, 1890 | Western Paving & Supply Co. | C. C. Cedar blocks | 5,428.12 | 1,285.00 |
| July 28, 1890 | Western Paving & Supply Co. | C. C. Cedar blocks | 5,465.57 | 1,294.40 |
| | Unfinished. J. V. McAdam | C. F. Cedar blocks | 2,500.00 | 600.00 |
| Oct. 1, 1890 | P. Farrell | C. F. Cedar blocks | 914.81 | 268.10 |
| May 5, 1890 | R. F. Conway | C. W. F. Cedar blocks | 4,615.08 | 1,108.72 |
| July 28, 1890 | J. J. Duffy & Co | Cedar blocks | 726.54 | 283.53 |
| Oct. 30, 1890 | Garden City Paving & Post Co | C. F. C. Cedar blocks | 3,748.96 | 1,124.00 |
| Sept. 15, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks | 15,289.82 | 3,600.40 |
| July 22, 1890 | Carden & Crowley | C. C. Cedar blocks | 5,805.71 | 1,375.00 |
| May 30, 1890 | R. F. Conway | C. F. Cedar blocks | 5,689.16 | 1,691.75 |
| | R. F. Conway | Curbing and Filling | | 1,155.30 |
| June 16, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks | 5,247.30 | 1,242.78 |
| | Unfinished. Western Paving & Supply Co. | | | 2,600.00 |
| Nov. 28, 1890 | Sackley & Peterson | C. F. Cedar blocks | 1,842.80 | 549.17 |
| | T. W. Harvey | W. C. C. Macadam | 2,391.67 | 717.50 |
| July 31, 1890 | R. F. Conway | C. F. Cedar blocks | 5,613.00 | 1,326.35 |
| Nov. 26, 1890 | Garden City Paving & Post Co | Cedar blocks | 4,008.39 | 1,202.32 |
| Oct. 24, 1890 | Garden City Paving & Post Co | Curbing and Filling | | 1,252.35 |
| Nov. 25, 1890 | Western Paving & Supply Co. | C. F. Asphalt | 5,398.87 | 1,278.56 |
| Dec. 1, 1890 | R. F. Conway | C. Cedar blocks | 1,506.29 | 437.31 |
| June 1, 1890 | McAdam & Amberg | C. F. Cedar blocks | 14,394.88 | 3,409.30 |
| Sept. 12, 1890 | J. B. Smith & Co | C. C. G. Cedar blocks | 1,632.00 | 408.00 |
| Sept. 16, 1890 | P. Farrell | C. G. Cedar blocks | 1,917.19 | 454.10 |
| Dec. 9, 1890 | Western Paving & Supply Co. | C. Cedar blocks | 4,712.13 | 1,901.76 |
| May 26, 1890 | R. F. Conway | C. F. Cedar blocks | 5,484.61 | 1,298.90 |
| June 7, 1890 | J. V. McAdam | C. F. Cedar blocks | 5,116.42 | 1,211.78 |
| May 14, 1890 | William Kinsella | C. W. F. Cedar blocks | 11,282.32 | 2,672.14 |
| Oct. 9, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks | 2,773.12 | 1,065.00 |
| Sept. 23, 1890 | P. Farrell | C. F. Cedar blocks | 2,164.09 | 511.20 |
| Oct. 10, 1890 | J. V. McAdam | C. W. F. Cedar blocks | 7,272.56 | 1,722.85 |
| Nov. 3, 1890 | Western Paving & Supply Co. | Grading Cedar blocks | 1,701.65 | 546.96 |
| May 15, 1890 | J. B. Smith & Co | Curbing | | 543.00 |
| | T. W. Harvey | W. C. C. Macadam | 2,115.00 | 684.50 |
| Nov. 8, 1890 | J. B. Smith & Co | C. F. Cedar blocks | 2,717.84 | 643.50 |
| Aug. 26, 1890 | Garden City Paving & Post Co | G. and Cedar blocks | 9,661.92 | 1,811.61 |
| June 26, 1890 | Western Paving & Supply Co. | C. G. Cedar blocks | 5,419.80 | 2,438.91 |
| June 27, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks | 10,529.99 | 2,493.95 |
| June 10, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks | 2,343.18 | 553.51 |
| Sept. 13, 1890 | P. Farrell | C. W. Filling | | 1,194.00 |
| | J. V. McAdam | C. G. Granite | 1,209.89 | 327.01 |
| July 7, 1890 | J. V. McAdam | C. F. Cedar blocks | 4,939.16 | 1,234.79 |
| | Unfinished. P. Farrell | C. F. Cedar blocks | 2,900.00 | 775.00 |

STREETS IMPROVED, WEST

| NAME OF STREET. | FROM | TO | COMMENCED. |
|-----------------------|--------------------------------------|-----------------------------|----------------|
| Leavitt..... | Twelfth..... | Thirteenth..... | April 1, 1890 |
| Lexington..... | Rockwell..... | California avenue..... | Nov. 5, 1890 |
| Lincoln..... | Polk..... | Taylor..... | Sept. 2, 1890 |
| Loomis..... | Twenty-second..... | Chicago river..... | May 10, 1890 |
| Loomis..... | Fourteenth..... | Sixteenth..... | July 12, 1890 |
| Lull place..... | Wood..... | Eastern terminus..... | ..... |
| Madison..... | Western avenue..... | Rockwell..... | Sept. 28, 1889 |
| Mather..... | Canal..... | Clinton..... | July 2, 1890 |
| Mark..... | Halsted..... | Union..... | May 28, 1890 |
| May..... | Eighteenth..... | Twentieth..... | June 16, 1890 |
| McHenry..... | Blanche..... | North avenue..... | Aug. 25, 1890 |
| McReynolds..... | Paulina..... | Ashland avenue..... | Sept. 10, 1890 |
| Milwaukee avenue..... | California avenue..... | Fullerton avenue..... | Oct. 18, 1890 |
| Milwaukee avenue..... | Western avenue..... | California avenue..... | Sept. 25, 1890 |
| Moorman..... | Paulina..... | Lull place..... | Sept. 22, 1890 |
| Morgan..... | Fifteenth..... | Wright..... | Sept. 16, 1890 |
| Morgan..... | Eighteenth..... | Twenty-second..... | Aug. 28, 1890 |
| Nassau..... | Jackson..... | Van Buren..... | Oct. 15, 1890 |
| Newberry avenue..... | Sixteenth..... | Eighteenth..... | Oct. 20, 1890 |
| Nineteenth..... | Union..... | Halsted..... | ..... |
| Nineteenth..... | Hoyne avenue..... | Western avenue..... | Sept. 10, 1889 |
| Nineteenth..... | Ashland avenue..... | Blue Island avenue..... | June 28, 1890 |
| North avenue..... | California avenue..... | Kedzie avenue..... | Aug. 4, 1890 |
| Oakley avenue..... | North avenue..... | Division..... | Sept. 15, 1890 |
| Oakley avenue..... | North avenue..... | Wabansia avenue..... | Oct. 6, 1890 |
| Oakley avenue..... | Hamburg..... | Milwaukee avenue..... | Sept. 10, 1890 |
| Ogden avenue..... | Twelfth..... | California avenue..... | May 1, 1890 |
| Ogden avenue..... | Western avenue..... | Rockwell..... | May 1, 1890 |
| Olive..... | Taylor..... | Twelfth..... | April 1, 1890 |
| *Owasco..... | Forty-sixth..... | Forty-seventh..... | ..... |
| Paulina..... | Twenty-first..... | Blue Island avenue..... | Nov. 19, 1889 |
| Potomac avenue..... | Leavitt..... | Western avenue..... | Sept. 1, 1889 |
| Rice..... | Robey..... | Leavitt..... | Oct. 24, 1890 |
| Robey..... | Armitage avenue..... | Fullerton avenue..... | July 7, 1890 |
| Rundell place..... | Aberdeen..... | Centre avenue..... | Oct. 3, 1890 |
| Sangamon..... | 200 feet north of Austin avenue..... | Viaduct..... | Aug. 4, 1890 |
| Selden..... | Wood..... | Lincoln..... | July 16, 1890 |
| Seventeenth..... | Loomis..... | Wood..... | Oct. 1, 1890 |
| Seventeenth..... | Wood..... | Lincoln..... | Oct. 8, 1890 |
| Seward..... | Canalport avenue..... | Lumber..... | July 1, 1890 |
| Seymour..... | Division..... | North avenue..... | July 12, 1890 |
| Shober..... | Division..... | North avenue..... | June 4, 1890 |
| Sibley..... | Harrison..... | McAllister place..... | Sept. 16, 1890 |
| Sixteenth..... | Halsted..... | Throop..... | ..... |
| Spaulding avenue..... | Ogden avenue..... | C. B. & Q. R. R..... | ..... |
| Thomas..... | Seymour..... | California avenue..... | ..... |
| Troy..... | Colorado avenue..... | Jackson..... | Nov. 10, 1890 |
| Twelfth..... | California avenue..... | Kedzie avenue..... | Sept. 21, 1889 |
| Twelfth..... | Kedzie avenue..... | Douglas Park boulevard..... | |

* Private contract.

STREET DEPARTMENT.

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DIVISION, 1890—CONTINUED.

| FINISHED. | CONTRACTOR. | NATURE OF IMPROVEMENT. | SQUARE YARDS. | LINEAL FEET. |
|----------------|------------------------------|--------------------------|---------------|--------------|
| May 20, 1890 | J. V. McAdam..... | C. F. Cedar blocks... | 2,487.08 | 601.07 |
| Nov. 25, 1890 | J. B. Smith & Co..... | C. F. Cedar blocks... | 4,227.03 | 1,268.12 |
| Oct. 14, 1890 | J. V. McAdam..... | C. F. Cedar blocks... | 2,702.21 | 810.66 |
| May 26, 1890 | Garden City Paving & Post Co | C. G. Cedar blocks... | 5,914.78 | 2,129.32 |
| July 18, 1890 | Garden City Paving & Post Co | Grading and Paving... | 4,030.62 | 954.62 |
| | White & Valentine..... | C. F. Cedar blocks... | | 317.50 |
| Oct. 1, 1890 | R. F. Conway..... | C. F. Cedar blocks... | 7,562.96 | 237.40 |
| Aug. 15, 1890 | P. Farrell..... | C. F. Cedar blocks... | 1,189.54 | 256.40 |
| June 3, 1890 | O. Vider & Co..... | C. W. F. Cedar blocks... | 1,829.20 | 457.30 |
| June 30, 1890 | J. V. McAdam..... | C. F. Cedar blocks... | 3,827.27 | 904.08 |
| Aug. 28, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks... | 2,388.93 | 553.90 |
| Sept. 18, 1890 | Western Paving & Supply Co. | C. F. Cedar blocks... | 2,473.88 | 618.47 |
| Dec. 1, 1890 | O. Vider & Co..... | C. F. Cedar blocks... | 4,894.44 | 1,159.00 |
| Dec. 1, 1890 | Western Paving & Supply Co. | C. F. Cedar blocks... | 17,028.21 | 3,418.00 |
| Nov. 3, 1890 | P. Farrell..... | C. F. Cedar blocks... | 1,011.51 | 303.04 |
| Oct. 9, 1890 | P. Farrell..... | C. F. Cedar blocks... | 950.44 | 223.34 |
| Oct. 9, 1890 | R. F. Conway..... | C. F. Cedar blocks... | 8,016.11 | 1,898.55 |
| Oct. 28, 1890 | R. F. Conway..... | C. F. Cedar blocks... | 1,651.88 | 495.04 |
| Oct. 22, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks... | 2,679.07 | 634.52 |
| Aug. 5, 1890 | P. Farrell..... | C. W. F. Cedar blocks... | 1,523.63 | 456.79 |
| May 3, 1890 | Garden City Paving & Post Co | C. W. F. Cedar blocks... | 8,829.26 | 2,076.60 |
| June 27, 1890 | J. V. McAdam..... | C. F. Cedar blocks... | 3,692.19 | 874.47 |
| Oct. 27, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks... | 17,892.54 | 2,647.90 |
| Oct. 27, 1890 | J. B. Smith & Co..... | C. F. Cedar blocks... | 8,848.67 | 2,654.00 |
| Nov. 10, 1890 | P. Farrell..... | C. F. Cedar blocks... | 2,159.16 | 647.70 |
| Sept. 19, 1890 | J. V. McAdam..... | C. F. Cedar blocks... | 8,538.42 | 2,021.00 |
| July 22, 1890 | Carden & Crowley..... | C. W. F. Cedar blocks... | 9,235.97 | 2,296.24 |
| July 22, 1890 | Carden & Crowley..... | W. C. C. Cedar blocks... | 8,071.70 | 1,535.85 |
| May 2, 1890 | J. V. McAdam..... | C. W. F. Cedar blocks... | 3,109.75 | 790.60 |
| | T. W. Harvey..... | W. C. C. Macadam... | 2,115.00 | 634.50 |
| April 30, 1890 | R. F. Conway..... | C. F. Cedar blocks... | 3,517.49 | 830.90 |
| Jan. 1, 1890 | Western Paving & Supply Co. | C. F. Cedar blocks... | 4,308.82 | 1,441.14 |
| Nov. 26, 1890 | O. Vider & Co..... | C. F. Cedar blocks... | 5,664.32 | 1,341.50 |
| Oct. 1, 1890 | J. V. McAdam..... | C. F. Cedar blocks... | 10,958.18 | 2,595.30 |
| Oct. 10, 1890 | P. Farrell..... | W. C. G. Cedar blocks... | 1,194.87 | 597.44 |
| Aug. 8, 1890 | J. B. Smith & Co..... | G. Cedar blocks..... | 2,159.53 | 629.50 |
| Oct. 8, 1890 | P. Farrell..... | C. F. Cedar blocks... | 2,348.10 | 956.10 |
| Nov. 3, 1890 | J. V. McAdam..... | C. W. F. Cedar blocks... | 10,602.16 | 2,511.04 |
| Oct. 10, 1890 | Carden & Crowley..... | C. W. F. Cedar blocks... | 2,997.65 | 709.97 |
| Aug. 1, 1890 | R. F. Conway..... | C. F. Cedar blocks... | 2,807.95 | 842.39 |
| Aug. 30, 1890 | Western Paving & Supply Co. | C. F. Cedar blocks... | 11,274.87 | 2,670.80 |
| Aug. 13, 1890 | J. B. Smith & Co..... | C. F. Cedar blocks... | 8,846.47 | 2,653.94 |
| Oct. 24, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks... | 2,153.28 | 646.10 |
| Unfinished | J. B. Smith & Co..... | C. Filling..... | | 3,500.00 |
| | A. J. McBeam..... | C. Filling..... | | 1,500.00 |
| Unfinished | Western Paving & Supply Co. | C. F. Cedar blocks... | | 1,932.00 |
| Dec. 3, 1890 | White & Valentine..... | C. F. Cedar blocks... | 1,563.23 | 468.97 |
| July 8, 1890 | R. F. Conway..... | Cedar blocks..... | 13,745.64 | 2,798.89 |
| Unfinished | Western Paving & Supply Co. | C. F. Cedar blocks... | | 3,800.00 |

STREETS IMPROVED, WEST

| NAME OF STREET. | FROM | TO | COMMENCED |
|-----------------------|-----------------------|-------------------------|----------------|
| Twelfth | California avenue.... | Kedzie avenue..... | Sept. 21, 1889 |
| Twenty-first | Union | Halsted | June 7, 1890 |
| Twenty-second..... | Trumbull | Lawndale avenue..... | July 23, 1890 |
| Twenty-second..... | Western avenue..... | C. B. & Q. R. R..... | July 22, 1890 |
| Twenty-second | Western avenue..... | C. B. & Q. R. R..... | Nov. 1889 |
| Van Horn..... | Lafin..... | Ashland avenue..... | June 3, 1890 |
| Van Horn..... | Ashland avenue | Wood..... | July 1, 1890 |
| Van Horn..... | Robey..... | Western avenue..... | June 13, 1890 |
| *Van Buren..... | Forty-sixth..... | Forty-seventh..... | ..... |
| Wabansia avenue | Ashland avenue..... | Robey..... | April 1, 1890 |
| Wabansia avenue | Coventry..... | Ashland avenue..... | Mar. 24, 1890 |
| Washburn avenue | Robey..... | Oakley avenue | June 12, 1890 |
| Washburn avenue | Ashland avenue..... | Wood..... | May 26, 1890 |
| Western avenue..... | North avenue..... | Fullerton avenue..... | July 14, 1890 |
| Whipple | Colorado avenue..... | Van Buren..... | ..... |
| Wilmot | Leavitt | Armitage avenue..... | Sept. 30, 1890 |
| Wood..... | Fifteenth..... | Blue Island avenue..... | ..... |
| Yeaton..... | Wood..... | Lincoln..... | Sept. 10, 1890 |
| York..... | Ashland avenue..... | Wood..... | Oct. 17, 1889 |

* Private contract.

STREET DEPARTMENT.

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DIVISION, 1890—CONTINUED.

| FINISHED. | CONTRACTOR. | NATURE OF IMPROVEMENT. | SQUARE YARDS. | LINEAL FEET. |
|----------------|------------------------------|------------------------|---------------|--------------|
| June 10, 1890 | William Kinsella..... | Curbing and Filling.. | | 192.89 |
| June 12, 1890 | J. B. Smith & Co. | C. F. Cedar blocks... | 1,860.33 | 465.08 |
| Aug. 16, 1890 | Garden City Paving & Post Co | C. F. Cedar blocks... | 8,354.80 | 1,566.53 |
| Sept. 17, 1890 | Garden City Paving & Post Co | Grading Cedar blocks | 33,641.29 | 6,897.51 |
| Oct. 8, 1890 | McAdam & Amberg..... | Curbing and Filling.. | | 1,992.51 |
| July 8, 1890 | J. V. McAdam..... | C. W. F. Cedar blocks | 2,554.12 | 604.92 |
| July 3, 1890 | J. V. McAdam..... | C. W. F. Cedar blocks | 5,205.85 | 1,232.96 |
| Dec. 5, 1890 | J. V. McAdam..... | C. W. F. Cedar blocks | 11,288.04 | 2,673.49 |
| | T. W. Harvey..... | W. C. C. Macadam,... | 2,115.00 | 634.50 |
| Aug. 2, 1890 | O. Vider & Co..... | C. F. Cedar blocks... | 11,321.63 | 2,681.00 |
| June 13, 1890 | Western Paving & Supply Co.. | C. Cedar blocks..... | 2,688.67 | 636.70 |
| July 24, 1890 | J. V. McAdam..... | C. F. Cedar blocks... | 8,075.98 | 1,907.71 |
| May 29, 1890 | J. V. McAdam..... | G. Cedar blocks..... | 5,120.62 | 1,212.78 |
| Oct. 24, 1890 | R. F. Conway..... | C. F. Cedar blocks... | 28,422.39 | 5,547.00 |
| | R. F. Conway..... | Curbing and Filling.. | | 1,267.95 |
| Nov. 6, 1890 | Garden City Paving & Post Co | C. F. C. Cedar blocks | 6,028.14 | 1,507.00 |
| | Unfinished P. Farrell..... | C. W. F. Cedar blocks | | 4,000.00 |
| Oct. 8, 1890 | P. Farrell..... | C. F. Cedar blocks... | 2,345.88 | 555.50 |
| May 10, 1890 | J. V. McAdam..... | C. F. Cedar blocks... | 4,733.81 | 1,121.06 |

Lineal feet paving..... 186,666.02 feet, or 35.86 miles.

On unpaved streets, lineal feet curbing, filling, etc.. 33,927.30 feet, or 6.42 miles.

GRAND TOTALS..... 220,593.32 feet, or 41.78 miles.

The annexation of Gano, Washington Heights, West Roseland and of Calumet, has extended the number of miles of streets in Chicago to 2,235.71, divided as follows :

| | IMPROVED. | UNIMPROVED. |
|------------------------------------|---------------|-----------------|
| Former City of Chicago | 438.28 | 330.28 |
| Hyde Park | 125.07 | 416.87 |
| Lake | 49.09 | 298.09 |
| Lake View | 56.05 | 75.45 |
| Jefferson | | 243.38 |
| Cicero | | 84.79 |
| Gano, Washington Heights, etc..... | | 119.00 |
| TOTALS..... | 668.49 | 1,567.22 |

SUMMARY OF STREETS IMPROVED DURING 1890.

| PAVEMENT. | NORTH DIVISION, INCLUDING LAKE VIEW. | | | SOUTH DIVISION, INCLUDING HYDE PARK AND LAKE. | | | WEST DIVISION, INCLUDING JEFFERSON AND CICERO. | | | TOTALS. | | |
|---|--|-----------------|--------|---|-----------------|--------|--|-----------------|--------|------------------|-----------------|--------|
| | Square Yards. | Lineal Feet. | Miles. | Square Yards. | Lineal Feet. | Miles. | Square Yards. | Lineal Feet. | Miles. | Square Yards. | Lineal Feet. | Miles. |
| Cedar | 336,994.41 | 107,598.23 | 20.38 | 336,742.77 | 109,988.05 | 20.88 | 706,117.46 | 192,197.46 | 34.51 | 1,879,854.64 | 899,778.74 | 75.72 |
| Asphalt ..... | ..... | ..... | ..... | 11,978.12 | 8,748.45 | 0.71 | 5,898.87 | 1,278.56 | 0.24 | 17,876.49 | 5,027.01 | 0.95 |
| Brick ..... | ..... | ..... | ..... | 8,600.00 | 2,000.00 | 0.38 | ..... | ..... | ..... | 8,600.00 | 2,000.00 | 0.38 |
| Granite ..... | ..... | ..... | ..... | 15,085.01 | 6,187.17 | 1.16 | 1,667.00 | 569.00 | 0.11 | 16,702.01 | 6,706.17 | 1.27 |
| Macadam | 89,981.80 | 25,542.49 | 4.82 | 263,642.50 | 84,918.00 | 16.08 | 8,736.67 | 2,621.00 | 0.50 | 362,310.97 | 112,981.49 | 21.40 |
| TOTALS | 426,926.21 | 138,040.72 | 25.20 | 635,998.40 | 206,786.67 | 39.16 | 721,919.50 | 196,666.02 | 35.36 | 1,784,844.11 | 526,465.41 | 99.72 |
| Curb and Fill, Curb Wall and Fill, etc. .... | ..... | 6,862.97 | 1.20 | ..... | 5,500.00 | 1.04 | ..... | 32,927.80 | 6.42 | ..... | 45,790.27 | 8.66 |
| GRAND TOTALS ..... | ..... | 139,408.69 | 26.40 | ..... | 212,286.67 | 40.20 | ..... | 220,593.82 | 41.78 | ..... | 572,288.68 | 108.38 |

RECAPITULATION OF STREETS BY TOWNSHIPS, SHOWING PAVED AND UNIMPROVED STREETS,
AT THE CLOSE OF THE YEAR 1890.

| TOWNSHIP. | Miles of Streets. | PAVED STREETS—MILES. | | | | | | Total. | Unimproved Streets— Miles. | Miles Re-paved in 1890 |
|-------------------------|-------------------|----------------------|----------|---------------|-----------|----------------|----------------|--------|-------------------------------|------------------------|
| | | Cedar Block. | Macadam. | Medina Stone. | Granitic. | Sheet Asphalt. | Asphalt Block. | Brick. | | |
| North Division..... | 168.38 | 76.71 | 1.07 | 9.49 | 0.04 | 2.19 | ..... | ..... | 87.88 | 8.21 |
| South Division..... | 238.28 | 84.72 | 9.51 | 1.70 | 19.64 | 1.04 | 4.11 | ..... | 107.56 | 2.82 |
| West Division..... | 872.42 | 212.93 | 21.08 | 0.89 | 0.80 | 1.86 | ..... | ..... | 185.36 | 1.66 |
| Hyde Park..... | 541.94 | 1.50 | 128.19 | ..... | ..... | ..... | ..... | 0.38 | 416.87 | ..... |
| Lake..... | 347.09 | 8.92 | 40.17 | ..... | ..... | ..... | ..... | ..... | 298.00 | ..... |
| Lake View..... | 181.58 | 24.40 | 81.65 | ..... | ..... | ..... | ..... | ..... | 75.48 | 0.54 |
| Jefferson..... | 242.28 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 242.28 | ..... |
| Cicero..... | 84.79 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 84.79 | ..... |
| Gano*..... | 119.00 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 119.00 | ..... |
| Viaduct approaches..... | 1.15 | 1.15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Totals..... | 2,286.86 | 410.83 | 226.67 | 2.58 | 20.48 | 5.09 | 4.11 | 0.88 | 1,567.22 | 8.23 |

*Including Washington Heights, West Roseland and part of Calumet

Table showing total miles of improved streets, with percentage of each class of pavement:

| PAVEMENT. | MILES. | PER CENT. |
|--------------------|---------------|---------------|
| Cedar Block..... | 410.38 | 61.27 |
| Macadam | 226.67 | 33.85 |
| Medina Stone..... | 2.58 | 0.88 |
| Granite | 20.48 | 3.07 |
| Sheet Asphalt..... | 5.09 | 0.76 |
| Asphalt Block..... | 4.11 | 0.62 |
| Brick | 0.88 | 0.05 |
| TOTAL | 669.64 | 100.00 |

The total number of miles of pavement laid each year, from the introduction of street paving in 1855 to the present date, is given in the following review, the number of miles of paved streets in the annexed towns of Hyde Park, Lake, and Lake View being added to the total of 1889.

| Year. | Miles. | Year. | Miles. | Year. | Miles. | Year. | Miles. |
|-------|--------|-------|--------|-------|--------|-------------------|---------------|
| 1855 | 1.72 | 1864 | 2.40 | 1873 | 10.19 | 1882 | 24.95 |
| 1856 | .26 | 1865 | 2.08 | 1874 | 9.07 | 1883 | 22.49 |
| 1857 | 2.62 | 1866 | 8.87 | 1875 | 11.49 | 1884 | 34.52 |
| 1858 | 7.20 | 1867 | 11.87 | 1876 | 10.50 | 1885 | 38.06 |
| 1859 | 5.70 | 1868 | 5.46 | 1877 | 12.20 | 1886 | 43.66 |
| 1860 | .... | 1869 | 18.32 | 1878 | 11.01 | 1887 | 36.75 |
| 1861 | .69 | 1870 | 19.96 | 1879 | 6.83 | 1888 | 54.33 |
| 1862 | 2.57 | 1871 | 25.63 | 1880 | 16.84 | 1889 | 254.22 |
| 1863 | 2.00 | 1872 | 1.82 | 1881 | 24.52 | 1890 | 99.72 |
| | | | | | | TOTAL..... | 840.06 |

Of this amount 170.42 miles have been repaved during the same period, which reduces the actual amount of paved streets within the corporate limits on January 1, 1891, to 669.64 miles, to which may be added 1,567.22 miles of unimproved streets, making a total of 2,236.86 miles of streets in Chicago at this date; less 1.15 miles of viaduct approaches, making a grand total of 2,235.71 miles.

UNIMPROVED STREETS.

In the work of grading and ditching the money at the disposal of this bureau, for that purpose, has been judiciously expended in keeping unimproved streets in good, passable condition. The total length of streets graded and ditched by the division foremen amounts in the aggregate to about 712 miles.

The extension of the unsewered territory of the city by late annexations will necessitate an appropriation for the purpose of ditching new streets and keeping old ditches free from stagnant waters.

An outlet for the surface drainage of Grand Crossing and vicinity, and that of the territory east of it and adjacent to Seventy-ninth street has been provided for by the construction of a box drain, with inside dimensions of $4\frac{1}{2} \times 5\frac{1}{2}$ feet, along the latter thoroughfare, connecting with the ditch at the crossing of the B. & O. Ry. and leading east into the lake. The cost was borne by a special assessment on the property benefited.

CLEANING OF THE IMPROVED STREETS.

The work, as heretofore, has been done partly under two contracts, viz.: the "sweeping" with machinery all improved streets in the First ward, which was awarded on April 2d to J. S. Cooper at \$4.49 per mile, and the "sweeping and cleaning" of all improved streets (macadamized excepted) outside the First ward, which was also awarded to J. S. Cooper at \$25.99 per mile. Under the former contract there was 1,767.94 miles "swept" at a cost of \$7,938.04, and under the latter 3,949.86 miles were "swept and cleaned" at a cost of \$102,656.85, making a total of \$110,594.89 paid to contractor.

The work of collecting and disposing of the sweepings in the First ward was done by department employing men at \$1.50 per day and carts at \$3.00, the same being done at night. Previous to April 3d whatever sweeping was required was done by agreement at \$5.49 per mile; the rate of last year's contract for the same work. The total number of miles swept and cleaned under "sweeping" contract and by department was 2,266.78, at a cost of \$49,766.31 (this amount includes cost of sweeping). The nature of the work with cost and average for each month will be seen from appended tabulated statement, marked "Class A," or First ward.

In addition to the regular street cleaning programme the department has employed men and carts to keep all the principal intersections and viaducts free from snow, slush, and all accumulations consequent to wet or soft weather, and especially was this required in the Spring and Fall of the year, the cost for the same being \$9,595.50. An additional corps of men and carts was put on day work during the Summer months to keep the business section free from all debris, such as paper, the sweepings of stores.

LUMBER.

The following table shows in detail the amount of lumber used by the division foremen in the construction and repairs of aprons, culverts, crossings, etc., and also for sidewalk intersections and general repairs :

| FOR WHAT USED. | NORTH DIVISION. | | | SOUTH DIVISION. | | | WEST DIVISION. | | |
|--------------------------|-----------------|-------------------|---------------------|-----------------|-------------------|---------------------|----------------|-------------------|---------------------|
| | Lumber. | | | Lumber. | | | Lumber. | | |
| | No. | No. Feet Pine. | No. Feet Oak. | No. | No. Feet Pine. | No. Feet Oak. | No. | No. Feet Pine. | No. Feet Oak. |
| <i>Street—</i> | | | | | | | | | |
| Aprons..... | 858 | 14,414 | ..... | 885 | 146,963 | 576 | 834 | 101,650 | ..... |
| Crossings..... | 474 | 82,788 | ..... | 1,172 | 270,262 | ..... | 1,037 | 262,044 | ..... |
| Culverts..... | 180 | 24,721 | ..... | 616 | 228,949 | 500 | 591 | 897,345 | ..... |
| Drain boxes..... | 97 | 12,787 | ..... | 180 | 23,780 | ..... | 18 | 19,281 | ..... |
| Steps and railings..... | 124 | 5,320 | ..... | 148 | 14,947 | ..... | 490 | 58,129 | ..... |
| Sidewalk intersections.. | 668 | 109,669 | ..... | 651 | 202,597 | ..... | 985 | 320,548 | ..... |
| General repairs..... | ..... | 127,230 | ..... | ..... | 610,486 | 2,510 | ..... | 413,297 | 100 |
| GRAND TOTAL..... | 1,846 | 376,929 | ..... | ..... | 1,497,964 | 3,586 | 3,955 | 1,572,294 | 100 |

RECAPITULATION.

Pine lumber used.....3,447,207 feet.
Oak lumber used..... 3,686 feet.
Grand total3,450,893 feet.

CLASS "A," OR FIRST WARD.

NUMBER OF LINEAL MILES AND COST THEREOF, AS CLEANED BY DEPARTMENT OF PUBLIC WORKS.

| MONTHS. | Streets. | Streets (not included in Class A). | Alleys. | Bridges. | Viaducts. | Total Miles. | COST. | Average Cost Per Mile. |
|----------------|----------|--|---------|----------|-----------|-----------------|-------------|------------------------------|
| January..... | 86.63 | 5.25 | .84 | .88 | .92 | 44.02 | \$1,522.80 | \$34.58 |
| February..... | 52.33 | .50 | 7.16 | .64 | .02 | 60.65 | 3,087.78 | 50.00 |
| March..... | 95.37 | ..... | 4.90 | .80 | .74 | 101.81 | 3,987.78 | 39.17 |
| April..... | 212.31 | ..... | 18.10 | 2.77 | 1.24 | 229.42 | 4,681.66 | 20.40 |
| May..... | 224.97 | ..... | 16.00 | 2.42 | 1.07 | 244.46 | 5,045.52 | 20.60 |
| June..... | 268.12 | ..... | 20.18 | 8.40 | 1.08 | 292.78 | 5,223.13 | 17.84 |
| July..... | 266.38 | ..... | 18.66 | 2.80 | .72 | 288.56 | 5,536.78 | 19.20 |
| August..... | 264.24 | ..... | 26.31 | 3.02 | .78 | 294.35 | 5,045.78 | 17.15 |
| September..... | 261.05 | ..... | 22.17 | 2.35 | .89 | 289.46 | 4,965.32 | 17.22 |
| October..... | 178.86 | ..... | 9.45 | 1.93 | .86 | 190.10 | 4,026.17 | 21.18 |
| November..... | 115.94 | ..... | 3.44 | 2.04 | 1.22 | 122.64 | 3,887.95 | 27.62 |
| December..... | 100.21 | 5.00 | 1.04 | .84 | 1.44 | 108.53 | 3,286.19 | 30.37 |
| TOTAL..... | 2,078.91 | 10.75 | 142.75 | 23.89 | 10.48 | 2,266.78 | \$49,766.81 | \$21.95 |

Average number of miles cleaned each month..... 188.89
 Average cost for sweeping and cleaning each month..... \$4,147.19
 Total number of loads removed, 32,883 or 48,499 cubic yards.

STATEMENT OF WORK DONE BY CONTRACTOR IN CLEANING STREETS OUTSIDE THE FIRST WARD.

| 1890. | CLASS B. | | | CLASS C. | | | CLASS D. | | | CLASS E. | | | CLASS F. (ALLEYS.) | | | TOTALS. | | |
|----------------|--------------------------|--------|-------------|-------------------------|---------|-------------|---------------------------|--------|-------------|--------------------------|----------|-------------|-----------------------|--------|------------|--------------|---------------|--------------|
| | Cleaned twice each Week. | | | Cleaned once each Week. | | | Cleaned twice each Month. | | | Cleaned once each Month. | | | Cleaned once each Mo. | | | | | |
| | Lineal Feet. | Miles. | Cost. | Lineal Feet. | Miles. | Cost. | Lineal Feet. | Miles. | Cost. | Lineal Feet. | Miles. | Cost. | Lineal Feet. | Miles. | Cost. | Lineal Feet. | Lineal Miles. | Cost. |
| April..... | 199,286 | 37.74 | \$ 980 86 | 436,402 | 82.65 | \$2,148 08 | 380,251 | 72.00 | \$1,871 28 | 833,385 | 157.83 | \$4,102 00 | 665 | .16 | \$ 4 16 | 1,849,989 | 350.38 | \$9,106 32 |
| May..... | 432,280 | 91.34 | 2,373 93 | 949,847 | 179.89 | 4,675 35 | 651,553 | 129.40 | 3,207 16 | 977,817 | 185.19 | 4,913 08 | 53,095 | 10.06 | 281 46 | 3,114,611 | 589.88 | 15,330 96 |
| June..... | 598,029 | 113.26 | 2,943 63 | 1,017,446 | 192.70 | 5,003 27 | 651,813 | 129.45 | 3,208 46 | 942,617 | 173.51 | 4,639 47 | 56,658 | 10.74 | 279 14 | 3,266,563 | 618.66 | 16,078 97 |
| July..... | 527,136 | 99.83 | 2,594 58 | 1,031,668 | 195.39 | 5,073 19 | 598,458 | 113.36 | 2,945 96 | 915,847 | 173.47 | 4,509 49 | 52,776 | 9.99 | 259 64 | 3,125,915 | 592.03 | 15,388 86 |
| August..... | 494,486 | 94.08 | 2,443 84 | 904,794 | 182.73 | 4,749 16 | 539,274 | 111.60 | 2,900 43 | 791,802 | 149.96 | 3,897 46 | 17,762 | 3.36 | 87 32 | 2,860,118 | 541.68 | 14,078 26 |
| September..... | 467,399 | 88.52 | 2,300 64 | 909,750 | 172.29 | 4,477 82 | 522,619 | 99.17 | 2,577 42 | 816,814 | 154.70 | 4,080 65 | 29,793 | 5.64 | 146 58 | 2,747,365 | 520.32 | 15,523 11 |
| October..... | 201,057 | 38.64 | 1,004 25 | 649,508 | 123.01 | 3,197 03 | 390,662 | 73.99 | 1,923 00 | 718,911 | 138.16 | 3,538 80 | | | | 1,963,168 | 371.80 | 9,663 08 |
| November..... | 286,579 | 56.55 | 1,469 74 | 580,204 | 111.78 | 2,905 15 | 408,865 | 77.43 | 2,012 41 | 630,166 | 119.35 | 3,101 91 | | | | 1,927,814 | 365.11 | 9,439 21 |
| TOTALS | 3,273,251 | 619.91 | \$16,111 47 | 6,549,649 | 1240.44 | \$32,239 05 | 4,194,535 | 794.26 | \$20,646 17 | 6,627,359 | 1,255.17 | \$32,621 86 | 210,749 | 39.95 | \$1,033 80 | 20,855,543 | 3949.36 | \$102,656 85 |

Average number of miles cleaned each month..... 498.73 Average cost for each month. \$12,832 10

Total number of loads removed..... 92,980 Total number of cubic yards..... 139,895

RECAPITULATION OF STREET CLEANING FOR 1890.

| STREET CLEANING. | Total Number of Miles. | Average Number of Miles per Month. | Total Cost. | Average Cost per Lineal Mile |
|---|---------------------------|---|--------------|------------------------------------|
| Under contract, Classes B, C, D, E and F, as per schedule..... | 3,949.86 | 493.73 | \$102,656.85 | \$25.99 |
| By the Department, Class A, as per schedule..... | 2,266.78 | 188.89 | *49,766.31 | 21.95 |
| By the Department, Cost of cleaning intersections for entire year, maintain- ing day gang and levelling Lake Front dump..... | ..... | ..... | 18,186.75 | ..... |
| Cost of inspection in connection with contract of classes B, C, D, E and F. .... | ..... | ..... | 5,662.39 | ..... |
| TOTALS..... | 6,216.64 | 682.62 | \$171,272.30 | ..... |

* This amount includes the cost of sweeping (\$4.49 per Mile) by contractor.

PERMITS FOR OPENING STREETS.

Seventeen hundred and eighty-seven (1,787) permits were issued to sundry persons to open improved streets. A cash deposit covering cost of replacing pavements, etc., to their original condition, was made on each permit.

Sixteen hundred and five (1,605) openings were made on improved streets by gas companies and sundry other corporations under general deposit, the work of replacing the pavements being done by contractors, subject to inspection and acceptance of the department.

Total number of openings, 3,392.

FOR OPENING STREETS FOR THE CORRESPONDING YEARS 1889-1890.

| MONTH. | Number of Permits Issued in 1889. | Number of Permits Issued in 1890. | MONTH. | Number of Permits Issued in 1889. | Number of Permits Issued in 1890. |
|---------------|-----------------------------------|-----------------------------------|----------------|-----------------------------------|-----------------------------------|
| January..... | 64 | 58 | August..... | 139 | 184 |
| February..... | 23 | 73 | September..... | 161 | 196 |
| March..... | 90 | 123 | October..... | 180 | 201 |
| April..... | 133 | 142 | November..... | 84 | 165 |
| May..... | 135 | 140 | December..... | 83 | 122 |
| June..... | 125 | 187 | | | |
| July..... | 126 | 201 | TOTALS..... | 1,293 | 1,787 |

| | —1889.— | —1890.— |
|--|---------|---------|
| Average number of permits issued each month..... | 107 | 149 |
| Number of permits issued for opening of streets on which deposits were made (not including openings by gas companies and other corporations under general deposits)..... | 1,293 | 1,787 |
| Number of permits issued for opening unimproved streets..... | 5,401 | 8,905 |
| Totals..... | 6,694 | 10,692 |

| | | |
|--|-------------|-------------|
| Amount of cash deposits made | \$36,822 50 | \$36,853 00 |
| Amount retained for cost of repaving and inspection..... | 12,891 51 | 9,459 82 |
| Amount rebated to depositors..... | 18,265 99 | 20,044 18 |
| Amount retained on permits not settled..... | 5,665 00 | 7,060 00 |
| Average amount of cash deposit | 28 47 | 20 35 |
| Average amount retained for costs..... | 9 97 | 5 29 |

PERMITS FOR USE OF STREETS.

Twenty-two hundred and thirty-four (2,234) permits were issued to sundry parties to occupy streets for the purpose of depositing materials thereon during the construction of buildings.

The number of permits issued monthly, the amount of cash deposits and revenue received, is given in the following comparative statement:

| MONTHS. | Number of Permits Issued in 1889. | Number of Permits Issued in 1890. | MONTHS. | Number of Permits Issued in 1889. | Number of Permits Issued in 1890. |
|---------------|-----------------------------------|-----------------------------------|----------------|-----------------------------------|-----------------------------------|
| January..... | 42 | 91 | August..... | 175 | 175 |
| February..... | 127 | 174 | September..... | 169 | 190 |
| March..... | 290 | 279 | October..... | 181 | 214 |
| April..... | 227 | 208 | November..... | 96 | 149 |
| May..... | 206 | 238 | December..... | 75 | 92 |
| June..... | 204 | 231 | | | |
| July..... | 185 | 193 | TOTALS..... | 1,927 | 2,234 |

| | —1889.— | —1890.— |
|---|-------------|-------------|
| Average number of permits issued each month..... | 160 | 186 |
| Amount of cash deposits made..... | \$15,715 00 | \$13,465 00 |
| Amount retained for use of streets as per Section 1,104 Municipal Code..... | 5,284 50 | 5,616 00 |
| Amount rebated to depositors..... | 3,655 50 | 2,753 00 |
| Amount retained on permits not settled..... | 6,775 00 | 5,352 00 |
| Average amount of cash deposits..... | 8 15 | 6 02 |
| Average amount retained for use of streets..... | 2 74 | 2 15 |
| Total number of Permits issued..... | 1,927 | 2,234 |

HOUSE MOVING.

Seventeen hundred and ten (1,710) permits to move buildings were granted, of which 1,566 were for frame, and 139 for brick buildings, and four for iron cable reels; the total frontage of which was 33,922 lineal feet. By divisions, including the annexed territory adjacent to them, there were in the North division, 277; South division, 711; and West division, 722. Eight hundred and seventy-nine (879) of the buildings were one story, 765 were two stories, fifty-nine were three stories, and two were four stories high.

Total cash receipts, \$5,218.00.

The accompanying table shows the number and character of the buildings moved each month, and the receipts from this service.

STREET DEPARTMENT.

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| MONTHS, 1890. | Number Permits. | DIVISION. | | | MATERIAL. | | | | FEES. | | LINEAL FEET. | | STORIES HIGH. | | | | Cash Receipts. |
|---------------|-----------------|-----------|--------|-------|-----------|--------|--------|------|---------|---------|--------------|----------|---------------|------|--------|-------|----------------|
| | | North. | South. | West. | Frame. | Brick. | Cable. | Tee. | \$5.00. | \$1.00. | Frontage. | Average. | One. | Two. | Three. | Four. | |
| January..... | 72 | 11 | 28 | 82 | 67 | 5 | . | .... | 48 | 24 | 1,465 | 20,450 | 41 | 29 | 1 | 1 | \$264 00 |
| February..... | 119 | 10 | 46 | 63 | 97 | 22 | .... | .... | 44 | 75 | 2,419 | 20,380 | 60 | 57 | 2 | .... | 295 00 |
| March..... | 185 | 45 | 67 | 78 | 163 | 22 | .... | .... | 82 | 108 | 3,812 | 20,130 | 90 | 90 | 5 | .... | 513 00 |
| April..... | 201 | 36 | 72 | 93 | 183 | 18 | .... | .... | 111 | 90 | 4,011 | 19,680 | 107 | 88 | 6 | .... | 645 00 |
| May..... | 192 | 27 | 60 | 105 | 174 | 18 | .... | .... | 98 | 94 | 3,769 | 19,650 | 100 | 85 | 7 | .... | 584 00 |
| June..... | 164 | 24 | 70 | 70 | 151 | 13 | .... | .... | 88 | 76 | 3,208 | 19,380 | 67 | 88 | 8 | 1 | 516 00 |
| July..... | 148 | 27 | 61 | 60 | 137 | 8 | 3 | .... | 80 | 68 | 2,892 | 19,890 | 78 | 62 | 5 | .... | 468 00 |
| August..... | 148 | 22 | 76 | 50 | 136 | 11 | 1 | .... | 78 | 70 | 2,954 | 19,430 | 78 | 63 | 6 | .... | 460 00 |
| September.. | 163 | 23 | 73 | 67 | 154 | 9 | .... | .... | 75 | 88 | 3,290 | 20,380 | 87 | 73 | 3 | .... | 463 00 |
| October..... | 142 | 28 | 68 | 46 | 133 | 9 | .... | .... | 66 | 76 | 2,684 | 18,680 | 71 | 63 | 8 | .... | 406 00 |
| November..... | 96 | 12 | 49 | 35 | 96 | .... | .... | .... | 51 | 45 | 2,016 | 21 | 58 | 34 | 4 | .... | 300 00 |
| December..... | 80 | 11 | 41 | 38 | 75 | 4 | .... | 1 | 56 | 24 | 1,582 | 19,380 | 42 | 33 | 4 | ... | 304 00 |
| TOTAL..... | 1,710 | 277 | 711 | 722 | 1,566 | 139 | 4 | 1 | 877 | 883 | 33,992 | 19,490 | 879 | 765 | 59 | 2 | \$5,218 00 |

SIDEWALKS.

The number of miles of sidewalks, new, rebuilt, and repaired, including wood, stone, and concrete, is shown in the following table :

| DIVISION. | MATERIAL. | | | Total Miles. | Sidewalks Repaired. | Grand Total Miles |
|-------------|-----------|--------|-----------|--------------|---------------------|-------------------|
| | Wood. | Stone. | Concrete. | | | |
| South..... | 123.65 | 12.15 | 27.65 | 163.45 | 40.76 | 204.21 |
| West..... | 184.45 | 9.85 | 8.45 | 202.75 | 125.14 | 327.89 |
| North..... | 48.35 | 10.05 | 13.15 | 66.55 | 18.20 | 84.75 |
| TOTAL | 351.45 | 32.05 | 49.25 | 432.75 | 179.10 | 611.85 |

Of the above, 37.35 miles of plank walks have been built by the city under special assessment.

The total number of miles of sidewalk under the control of the city of Chicago, South, West, and Lincoln Park Commissioners, at the close of the year, is given in the following summary :

STREET DEPARTMENT.

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| UNDER CONTROL OF | MATERIAL | | | INCREASE OVER THE YEAR 1899 | | | TOTAL MILES. |
|---|-----------------|------------------|---------------------|-----------------------------|------------------|---------------------|-----------------|
| | Wood. Miles. | Stone. Miles. | Concrete. Miles. | Wood. Miles. | Stone. Miles. | Concrete. Miles. | |
| City..... | 2,240.06 | 163.83 | 75.84 | 378.35 | 32.05 | 49.25 | 456.65 |
| South Park Commissioners | | 12.30 | 1.44 | | .95 | 1.44 | 2.39 |
| West Park Commissioners | | 11.05 | .895 | | .15 | .895 | 1.045 |
| Lincoln Park Commissioners | | 2.17 | 2.05 | | | 2.05 | 2.05 |
| | 2,240.06 | 189.35 | 80.225 | 375.35 | 33.15 | 53.635 | 462.13 |
| Wood Sidewalk replaced by stone and concrete..... | | | | | | | 27.38 |
| Total miles in city | | | | Total increase | | | 489.51 |

OBSTRUCTIONS.

| | |
|---------------------------------|-------|
| Street obstruction permits... | 2,092 |
| Complaints of obstructions..... | 1,362 |
| Notices served..... | 1,194 |
| Cases in court..... | 114 |
| Number of convictions..... | 68 |
| Obstructions investigated..... | 4,906 |

I respectfully present for your consideration the following data with a view toward such legislation as would be effective. The cost per square foot of the different kinds of sidewalks as ordinarily laid in the residence portions of the city is, wooden 5c.; Portland cement, 18c.; and four-inch stone flags, 40c.; or in the proportions of 1, 3.6, and 8; while the average life (dating from the time of construction to the period when defects appear for the first time) of each is respectively about 5, 25, and 25 years, or as 1, 5, and 5. At all places where the bed of the walk is thoroughly compact and protected by side banks of earth or sod, cement walks should be laid, because they are economical, practically monolithic, easily repaired, and do not wear smooth. Slight defects in the bed of flag-stone walks have a tendency to cause the panels to tilt, strains are brought to bear and the stones are soon broken. Wooden walks become dangerous to pedestrians chiefly through lack of proper care in building, the use of inferior materials, atmospheric action, and delayed repairs.

Judgments in twenty-four cases, amounting to \$24,900.00, have been obtained against the city in the past year, due to injuries received from defective sidewalks.

In conclusion I would recommend that the districts in which the building of wooden sidewalks is forbidden be extended as rapidly as the growth of the city will permit.

Respectfully submitted,

JAMES O'BRIEN,

Superintendent of Sidewalks.

STREET LAMPS.

At the close of the year there were, including those on bridges, viaducts, parks and boulevards, 1,025 oil lamps, 8,080 gasoline lamps, 26,236 gas lamps, and 1,092 electric lights in the city, divided as follows:

STREET LAMPS.

| DIVISION. | OIL LAMPS. | | | | GASOLINE LAMPS. | | | |
|---|----------------------------------|----------------------------|--------|-------------------------------|-----------------------------------|----------------------------------|----------------------------|--------|
| | No. in City, Jan. 1, 1890. | Erected during 1890. | TOTAL. | Discontin- ued in 1890. | No. in City, Dec. 31, 1890. | No. in City, Jan. 1, 1890. | Erected during 1890. | TOTAL. |
| North, including Lake View... | 252 | ..... | 252 | 15 | 237 | 412 | 262 | 674 |
| South, including Hyde Park, Town of Lake, West Roseland, Chase and Wash. Heights | ..... | 219 | 219 | ..... | 219 | 2,742 | 966 | 3,708 |
| West, including Jefferson and Cicero.... | 527 | 27 | 554 | ..... | 554 | 3,560 | 1,039 | 4,599 |
| TOTALS..... | 779 | 246 | 1,025 | 15 | 1,010 | 6,714 | 2,267 | 8,981 |
| DIVISION. | GAS LAMPS. | | | | ELECTRIC LIGHTS. | | | |
| | No. in City, Jan. 1, 1890. | Erected during 1890. | TOTAL. | Discontin- ued in 1890. | No. in City, Dec. 31, 1890. | No. in City, Jan. 1, 1890. | Erected during 1890. | TOTAL. |
| North, including Lake View... | 4,752 | 627 | 5,379 | 637 | 4,742 | 57 | 136 | 193 |
| South, including Hyde Park, Town of Lake and South Chicago..... | 7,662 | 1,147 | 8,809 | 404 | 8,405 | 192 | 112 | 804 |
| West..... | 12,464 | 1,648 | 14,112 | 1,023 | 13,089 | 154 | 278 | 432 |
| TOTALS..... | 24,878 | 3,422 | 28,300 | 2,064 | 26,236 | 403 | 526 | 929 |
| Total number of Street Lamps in the city, 86,418. | | | | | | | | |
| | | | | | | | 163 | 1,092 |

Hyde Park, Lake, and Cicero, where there is no gas, are lighted under contract at the rate of \$15.00 per lamp per annum, and the Twenty-seventh ward (formerly Jefferson) is also lighted by contract at the rate of \$12.00 per lamp per annum.

The large amount of work done in the city shops has been very thoroughly executed at an immense saving of money, and the cost of lighting has been materially reduced, although the mechanics and lamp-lighters have been paid union and higher wages. The actual expenses have been reduced at least 25 per cent.

The gas lamps in the several sections of the city have been thoroughly overhauled, repaired, and re-painted, making them serviceable for years to come.

At the street intersections where the lamps did not have signs, the lanterns with the correct names of the streets have been placed upon them; where no lamps were, plain posts with cross-pieces bearing the names of the intersecting streets were erected. Exclusive of posts there were 32,617 signs placed, divided as follows: glass, 11,526; wood, 15,942; and tin, 5,149.

Below is a tabulated statement of the work done in the city repair shops, and the cost of the same:

| | GAS. | | GASOLINE. | | SIGNS. | | | POSTS ERECTED FOR SIGNS |
|----------------|-------------|---------|-------------|---------|--------|-----------------|-------|----------------------------------|
| | LANTERNS. | | LANTERNS. | | PUT ON | MADE AND PUT ON | | |
| | PLAIN SIGN. | | PLAIN SIGN. | | Glass. | Wood. | Tin. | |
| | Made. | Put On. | Made. | Put On. | | | | |
| New | 8,684 | 183 | 967 | ..... | 11,526 | 15,942 | 5,149 | 5,981 |
| Repaired | 24,726 | 1,349 | 6,014 | 581 | ..... | ..... | ..... | ..... |
| Painted | 10,989 | ..... | 2,463 | 3,149 | ..... | 15,942 | ..... | 5,981 |

| | | |
|-----------------------------------|-------------|---------------------|
| Gas lamp signs | \$10,107 62 | |
| Gas lamp repairs | 11,213 90 | |
| | | \$21,321 52 |
| Gasoline account, repairs | \$10,392 17 | |
| Gasoline account, operating | 73,116 43 | |
| | | 83,508 60 |
| | | <u>\$104,830 12</u> |

STREET RAILWAYS.

During the year the different companies have laid pavement on the portions of the streets occupied by their tracks as follows:

PAVEMENT.

| CORPORATIONS. | Granite Block. Square Yards. | Cobble Stone. Square Yards. | Cedar Block. Square Yards. | Total Sq. Yards. |
|---|------------------------------------|-----------------------------------|----------------------------------|---------------------|
| Chicago City Railway Company..... | 82,842 | ..... | ..... | 82,842 |
| West Chicago Street Railway Company..... | 4,738 | 25,239 | 51,341 | 81,818 |
| North Chicago Street Railway Company..... | 13,722 | 2,933 | 8,233 | 24,888 |
| TOTALS..... | 100,802 | 28,172 | 59,574 | 188,548 |

Street railway extensions were made by the different companies as follows:

CHICAGO CITY RAILWAY COMPANY.

| STREET. | FROM | TO | Lineal Feet. | REMARKS. |
|----------------------|-------------------|--------------------|--------------|----------------------|
| Cottage Grove avenue | Sixty-seventh.... | Seventy-first..... | 6,019.20 | Single track, Cable. |
| Cottage Grove avenue | Seventy-first.... | Seventy-fifth | 4,857.60 | Double track, Horse. |
| South Chicago avenue | Cottage Grove av. | Grand Crossing.. | 7,392.00 | Double track, Horse. |
| Thirty-ninth..... | Wentworth ave.. | Halsted..... | 3,960.00 | Single track, Horse. |
| TOTAL..... | ..... | ..... | 22,228.80 | 4.21 miles. |

WEST CHICAGO STREET RAILROAD COMPANY.

| STREET. | FROM | TO | Lineal Feet. | REMARKS. |
|--------------|--------------------|------------------|--------------|----------------------|
| Taylor..... | Canal..... | Western avenue . | 25,478 | Double track, Horse. |
| Twelfth..... | California avenue. | Kedzie avenue... | 5,280 | Double track, Horse. |
| Twelfth..... | Fifth avenue..... | Wabash avenue.. | 4,000 | Double track, Horse. |
| TOTAL..... | ..... | ..... | 34,758 | 6.58 miles. |

NORTH CHICAGO STREET RAILROAD COMPANY.

| STREET. | FROM | TO | Lineal Feet. | REMARKS. |
|---------------------|------------------|------------------|--------------|----------------------|
| Ashland avenue..... | Belmont avenue.. | Graceland avenue | 10,560 | Double track, Horse. |
| TOTAL..... | ..... | ..... | 10,560 | 2 miles. |

CHANGES.

| STREET. | FROM | TO | Lineal Feet. | REMARKS. |
|----------------------|----------------|-------------------|--------------|-----------------------------------|
| Clybourn avenue..... | Division | Fullerton avenue. | 22,000 | Horse, Double, to Calumet Double. |
| TOTAL..... | ..... | ..... | 22,000 | 4.16 miles. |

CALUMET ELECTRIC STREET RAILWAY COMPANY.

| STREET. | FROM | TO | Lineal Feet. | REMARKS. |
|-----------------------|-------------------|--------------------|--------------|-------------------------|
| Eighty-ninth | The Strand..... | Mackinaw avenue | 720 | Single track, Electric. |
| Mackinaw avenue... | Eighty-ninth | Harbor | 2,000 | Single track, Electric |
| Harbor | Mackinaw avenue | Ninety-third..... | 980 | Single track, Electric. |
| Ninety-third..... | Harbor | Stony Island ave. | 11,830 | Single track, Electric. |
| Stony Island avenue.. | Ninety-third..... | Ninety-fifth | 1,200 | Single track, Electric. |
| TOTAL..... | ..... | ..... | 16,180 | 8.06 miles. |

CICERO AND PROVISO ELECTRIC STREET RAILWAY COMPANY.

| STREET. | FROM | TO | Lineal Feet. | REMARKS. |
|----------------------|-------------------|-------------------|--------------|-------------------------|
| West Madison | West Fortieth ... | West Fifty-second | 15,840 | Double track, Electric. |
| West Lake | West Forty-eighth | West Fifty-second | 5,280 | Double track, Electric. |
| West Forty-eighth .. | West Madison... | West Lake | 4,800 | Double track, Electric. |
| TOTAL..... | ..... | ..... | 25,420 | 4.81 miles. |

CHICAGO AND SOUTH SIDE RAPID TRANSIT RAILROAD COMPANY.

| STREET. | FROM | TO | Lineal Feet. | REMARKS. |
|---------------|------------------|-------------------|--------------|-------------------------|
| Alley | Nineteenth... .. | Thirty-ninth..... | 19,600 | Double track, Elevated. |
| TOTAL.. ..... | ..... | ..... | 19,600 | 3.7 miles. |

WEST LAKE STREET ELEVATED RAILROAD COMPANY.

| STREET. | FROM | TO | Lineal Feet. | REMARKS. |
|-----------------|----------------|----------|--------------|-------------------------|
| West Lake | Canal. | May..... | 8,500 | Double track, Elevated. |
| TOTAL..... | ..... | ..... | 8,500 | 1.6 miles. |

STREET RAILWAYS.—RECAPITULATION.

| CORPORATIONS. | SOUTH DIVISION. | | | WEST DIVISION. | | | NORTH DIVISION. | | | TOTAL MILES |
|--|-----------------|--------|-------------------|----------------|--------|-------------------|-----------------|--------|-------------------|----------------|
| | Horse. | Cable. | Electric Elev'td. | Horse. | Cable. | Electric Elev'td. | Horse. | Cable. | Electric Elev'td. | |
| Chicago City Ry. Co..... | 118.76 | 34.19 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 152.95 |
| West Chicago Street R. R. Co..... | 10.85 | 1.86 | ..... | 113.12 | 17.56 | ..... | ..... | ..... | ..... | 142.89 |
| North Chicago Street R. R. Co..... | 1.34 | 1.02 | ..... | ..... | ..... | ..... | 58.96 | 18.98 | ..... | 80.30 |
| South Chicago City Ry. Co..... | 6.00 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6.00 |
| Calumet Electric Street Ry. Co..... | ..... | ..... | 3.06 | ..... | ..... | ..... | ..... | ..... | ..... | 3.06 |
| Cicero and Proviso Electric Street Ry..... | ..... | ..... | ..... | ..... | 4.80 | ..... | ..... | ..... | ..... | 4.80 |
| Chicago and South Side Rapid Transit Co .. | ..... | ..... | 3.70 | ..... | ..... | ..... | ..... | ..... | ..... | 3.70 |
| West Lake Street Elevated R. R. Co..... | ..... | ..... | ..... | ..... | ..... | 1.60 | ..... | ..... | ..... | 1.60 |
| Total Miles..... | 136.95 | 36.57 | 3.06 | 3.70 | 17.56 | 4.80 | 113.12 | 18.98 | 1.60 | 395.30 |

Number miles Horse track in city of Chicago.....309.03
 Number miles Cable track in city of Chicago.....73.11
 Number miles Electric track in city of Chicago.....7.86
 Number miles Elevated track in city of Chicago.....5.30
 Total Mileage.....395.30

RAILROAD GATES AND FENCES.

The ordinance of March 26, 1890, providing for the construction of fences, gates, lights, etc., at the streets intersecting the lines of the several railroads operating trains within the city limits, and regulating the speed of the same with a view to better protect the lives and property of citizens against accident has met with a general compliance. One hundred and forty-eight safety gates and 159.69 miles of fences were erected since the above date.

The accompanying table shows the work in detail done by the several railroad companies:

| NAME. | FENCES CONSTRUCTED—MILES | | | | | TOTAL. | GATES IN OPERATION | | TOTAL. |
|--------------------------------------|--------------------------|-------------|--------------|-----------------|--------------|---------------|--------------------|--------------|------------|
| | Wall. | Board. | Picket. | Expanded Metal. | Woven Wire. | | Prior to 1890. | During Year. | |
| Lake Shore & Michigan Southern..... | 0.02 | 1.92 | 6.62 | ..... | ..... | 8.56 | 40 | 3 | 43 |
| Chicago, Rock Island & Pacific..... | | 0.05 | 7.52 | ..... | 1.64 | 9.21 | 31 | 12 | 43 |
| New York, Chicago & St. Louis..... | | | | | 4.5 | 4.5 | ..... | ..... | ..... |
| Illinois Central..... | 4.65 | 0.20 | ..... | ..... | 14.10 | 18.95 | 17 | 2 | 19 |
| Baltimore & Ohio..... | | | | | 6. | 6. | 2 | 20 | 22 |
| Chicago & Grand Trunk..... | | | | | 3.6 | 3.6 | ..... | 1 | 1 |
| Western Indiana..... | | | 1.85 | ..... | 1.75 | 3.1 | 21 | 5 | 26 |
| Wabash Railway..... | | | | | | | | | |
| Atchison, Topeka & Santa Fe..... | | | | | 4. | 4. | ..... | 1 | 1 |
| Chicago & Northern Pacific..... | | | | 2.60 | 8.8 | 11.4 | 20 | ..... | 20 |
| Chicago, Burlington & Quincy..... | | | 2.5 | ..... | 5.3 | 7.8 | 28 | 5 | 33 |
| Chicago & Alton..... | | | | | | | | 7 | 7 |
| Chicago, Milwaukee & St. Paul..... | | | | | 13.69 | 13.69 | 24 | 6 | 30 |
| C. C. C. & St. Louis..... | | | 3.2 | 0.86 | ..... | 4.06 | 31 | 21 | 52 |
| Pittsburgh & Fort Wayne Railway..... | | | 10.1 | 1. | ..... | 11.10 | 29 | 2 | 31 |
| Chicago & North-Western Railway..... | | 6.50 | 11.8 | 2.50 | 32.9 | 53.7 | 96 | 54 | 150 |
| Chicago, Madison & Northern..... | | | | | | | | | |
| St. Charles Air Line..... | | | | | | | | 5 | 5 |
| Union Stock Yards Company..... | | | | | | | | 4 | 4 |
| TOTAL..... | 4.67 | 8.67 | 43.09 | 6.96 | 96.28 | 159.67 | 339 | 148 | 487 |

A majority of the companies have shown a disposition to heartily co-operate with this department in the fulfillment of this much-needed work.

Respectfully,

WM. C. WALSH,

General Inspector

Below is a tabulated statement of the number of poles erected and discontinued by the various telegraph, telephone and electric light companies during 1890. All newly erected poles were outside the underground district, the limits of which are as follows: On North avenue from the Lake to Wells street, thence south on Wells street to Lake street, thence west on Lake street to Ashland avenue, thence south on Ashland avenue to Sixteenth street, thence east on Sixteenth street to Butterfield street, thence south on Butterfield street to Thirty-first street, thence east on Thirty-first street to the lake.

| CORPORATION. | NUMBER OF POLES. | |
|--|------------------|----------|
| | ERECTED. | REMOVED. |
| Western Union Telegraph Co..... | 17 | 236 |
| Chicago Telephone Co..... | 592 | 135 |
| Hyde Park Electric Light and Power Co..... | 757 | ..... |
| Englewood Electric Light Co..... | 150 | ..... |
| TOTALS | 1,516 | 371 |

Respectfully submitted,

L. E. MCGANN,

Superintendent of Streets.

REPORT
OF THE
Bureau of Special Assessments
CITY OF CHICAGO

BUREAU OF SPECIAL ASSESSMENTS.

CHICAGO, December 31, 1890.

HON. W. H. PURDY,

Commissioner of Public Works.

DEAR SIR:—I submit herewith in tabular form a statement of special assessments made in this department during the past year, with a summary of the estimated cost of the same; also the amount of special assessments made in each year during the past thirty years. The aggregate for the period last named is \$47,694,099.70, the average amount for each year being \$1,589,808.32. During the year just closed the amount levied on abutting and adjoining property for all descriptions of street improvements was \$6,987,155.48, or about \$6.50 per capita of population. As compared with the previous year it shows an increase of \$2,766,285.55, or 65 $\frac{3}{10}$ per cent. The willingness with which the property owners imposed upon themselves this enormous amount of special taxation is the best evidence of their material prosperity and their unbounded faith in the commercial destiny of our city.

Since the annexation of the towns of Lake View, Jefferson, Lake, Hyde Park, and a large strip of Cicero, the labors of this department have increased fully 100 per cent., and the prospects are that this ratio of increase will prevail for the next five years, if not for a longer period—the more assuredly so should the municipal legislature determine that the street cleaning and sprinkling be done by special assessment. In view of these conditions it is evident that some steps should be taken during the next (present) session of the State Legislature to secure an amendment to the existing special assessment law, whereby its machinery may be so simplified that the present tortuous system of issuing rebates may be avoided and the rapidly increasing volume of book-keeping dispensed with. That the former is a growing burden upon the people, no one who has closely examined the operation of the present law will deny. In my judgment it should be so amended that the assessment for each improvement shall be based on its actual cost. This would entail no hardship on the contractor, for he would not be required to wait for his pay for a longer average period than one

year, and he could make his financial arrangements that at the end of the time specified he would receive his money. The difference in cost to the property owner would not amount to more than bank interest, and for all practical purposes, so far as he is concerned, the transaction would be the equivalent of a cash one. In addition, the property owner would be relieved, to his perfect satisfaction, from the annoyance and trouble of looking after his rebate, as is the case at present.

In the matter of improvements ordered on the "five year plan," the amendment I have suggested would save an almost infinite amount of perplexing labor. The existing law demands that one-fifth of the rebate shall be allowed on the payment of each installment, and this necessitates complicated book-keeping, not only in this department, but also in the offices of the City Collector and County Treasurer; and as this system of ordering improvements seems to meet with growing favor at the hands of the public, the complications and possibilities of errors are bound to grow in similar ratio.

The promiscuous ordering of improvements, evidently without the knowledge or concurrence of the property owners, and afterwards staying or annulling them, should be stopped at once, not only in the interest of those who would be directly affected, but also in the interest of public economy. It would, besides, relieve this department of a large amount of unnecessary labor.

I would recommend, in the interest of a more economical administration of the bureau, that the law be further amended so that the cost of "publication of notice" be reduced from 60 to 80 per cent. Each separate assessment now requires the publication of a mass of legal verbiage, which would be equally if not more efficacious were it used but once, followed by the list of improvements—in this wise:

SPECIAL ASSESSMENT NOTICE.

Notice is hereby given to all persons interested, that the City Council of the City of Chicago, having ordered that the following improvements be made in accordance with Article nine (9) of an Act of the General Assembly of the State of Illinois, entitled "An Act to provide for the incorporation of Cities and Villages," approved the tenth day of April, A. D. 1872, the ordinances for the same being on file in the office of the City Clerk, has applied to the County Court of Cook County for an assessment of the cost of said improvements according to benefits, and an assessment thereof having been made and returned to said Court, the final hearing thereon will be had at the term of said Court, commencing on the day of A. D. 189 . . .

All persons desiring may then and there appear and make their defense.

IMPROVEMENTS.

No. 40,100. Curbing with curbstones, filling and paving Lake street from Clark street to Michigan avenue.

No. 40,101. Sewer in Ashland avenue from West Madison street to West Harrison street.

- No. 40,102. Lamp posts on Wabash avenue from Van Buren street to Twelfth street.
No. 40,103. Stone sidewalk on Clark street from Randolph street to Washington street.
No. 40,109. House drains on same street between same points.
No. 40,132. Water service pipes on Dearborn avenue from Michigan street to Superior street.

JOHN SMITH,
JOSEPH BROWN,
WILLIAM WHITE.

Chicago, A. D. 189 . .

Commissioners.

At present the above mentioned commissioners who act a part in the machinery of the special assessment law, receive a fee of two dollars each for each assessment roll filed in the County Court. I would recommend that the fee be reduced to fifty cents—or, which is still better, that the law be so amended that city employes be appointed to act as such commissioners without additional compensation.

In conclusion, I renew the recommendation I made a year ago, viz. : that it would be desirable for the City Council to instruct the Commissioner of Public Works, Fire Marshal and Superintendent of Streets, to prepare during the summer vacation, the list of streets to be improved during the ensuing year, and make report thereof at the first meeting in September. The Committees on Streets and Alleys, to whom the list is usually referred, would then have a sufficient time wherein to consult with the property owners for final action, and the Special Assessment Bureau would thus be relieved from the necessity of making a number of assessments which for years to come will not be carried into effect, and which consequently would have to be repealed.

DEPARTMENT OF PUBLIC WORKS.

STATEMENT OF ASSESSMENTS FOR WOODEN BLOCK PAVEMENT.

| No. of Warrant | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|-----------------------|--------------------------------------|---------------------------------------|--------------|
| 10500 | Root..... | State..... | Ilalsted..... | \$ 29,050 44 |
| 10514 | Emerald avenue..... | Egan avenue..... | Forty-seventh..... | 42,995 84 |
| 10524 | Oakley avenue..... | West Division..... | West North avenue..... | 24,318 23 |
| 10530 | Troy..... | Fillmore..... | West Twelfth..... | 5,782 90 |
| 10532 | Huron..... | North Franklin..... | Kingsbury..... | 12,844 04 |
| 10534 | Butler..... | Twenty-fourth..... | Thirty-first..... | 36,609 84 |
| 10536 | Henry..... | Ashland avenue..... | Wood..... | 14,047 73 |
| 10539 | Kingsbury..... | Illinois..... | Erie..... | 10,105 59 |
| 10540 | Sheffield avenue..... | Clybourn avenue..... | Fullerton avenue..... | 83,892 16 |
| 10541 | Campbell avenue..... | West Polk..... | West Twelfth..... | 15,746 24 |
| 10542 | Crystal place..... | Leavitt..... | its eastern terminus..... | 14,709 48 |
| 10543 | Sangamon..... | 200 feet north of Austin avenue..... | Sangamon street viaduct..... | 3,647 88 |
| 10544 | Maplewood avenue..... | West Lake..... | Rail Road grounds..... | 8,144 84 |
| 10545 | Dudley..... | Augusta..... | West Division..... | 10,354 18 |
| 10546 | Elk Grove..... | North avenue..... | Armitage avenue..... | 28,142 59 |
| 10547 | West Erie..... | Leavitt..... | Western avenue..... | 10,867 88 |
| 10548 | Elm..... | Sedgwick..... | Larrabee..... | 8,256 03 |
| 10551 | Keenon..... | Ashland avenue..... | Wood..... | 13,368 75 |
| 10552 | Newberry avenue..... | Wright..... | West Eighteenth..... | 19,977 46 |
| 10553 | Lull place..... | Wood..... | its eastern terminus..... | 2,570 61 |
| 10554 | Dudley..... | North avenue..... | Armitage avenue..... | 37,680 99 |
| 10555 | Elk..... | Paulina..... | Bauwans..... | 2,381 97 |
| 10556 | Yeaton..... | Wood..... | Lincoln..... | 5,780 76 |
| 10557 | Moorman..... | Paulina..... | Lull place..... | 2,558 18 |
| 10558 | Jefferson..... | West Madison..... | West Kinzie..... | 14,518 55 |
| 10559 | West Seventeenth..... | Wood..... | Lincoln..... | 11,843 88 |
| 10562 | West Huron..... | Leavitt..... | Western avenue..... | 10,314 89 |
| 10577 | Alley..... | Thirty-first to Thirty-second..... | State and Wabash avenue..... | 8,105 28 |
| 10578 | Alley..... | Thirty-second to Thirty-third..... | State and Wabash avenue..... | 2,127 73 |
| 10579 | Alley..... | Thirty-first to Thirty-second..... | Wabash and Michigan avenues..... | 2,805 27 |
| 10580 | Alley..... | Thirty-second to Thirty-third..... | Wabash and Michigan avenues..... | 2,129 38 |
| 10581 | Alley..... | Thirty-first to Thirty-second..... | Indiana and Prairie avenues..... | 1,009 24 |
| 10582 | Alley..... | Thirty-first to Thirty-second..... | Prairie and Forrest avenues..... | 1,996 89 |
| 10585 | Alley..... | Twenty-ninth to Thirtieth..... | State and Wabash avenue..... | 3,407 00 |
| 10587 | Alley..... | Twenty-ninth to Ray..... | Calumet and South Park avenues..... | 1,490 00 |
| 10588 | Alley..... | Twenty-ninth to Thirtieth..... | Vernon and Cottage Grove avenues..... | 2,452 05 |

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|-------|----------------------|--|---------------------------------------|-----------|
| 10589 | Alley | In front of sundry lots in | Block 31, Section 88, 40, 14. | 884 51 |
| 10590 | Alley | Warren avenue to Washington boulevard. | 200 feet east of Homan avenue. | 985 61 |
| 10595 | East alley | In Block 24. | Section 17, 89, 14. | 1,639 67 |
| 10596 | Alleys | In Block 37. | Section 17, 89, 14. | 4,432 32 |
| 10601 | Pice. | Robey. | Leavitt. | 9,174 45 |
| 10603 | Ashland avenue. | Clybourn avenue. | Fullerton avenue. | 1,892 20 |
| 10607 | Potomac | Western avenue. | California avenue. | 22,798 60 |
| 10608 | Hoyle avenue | Armitage avenue. | Asylum place. | 14,431 88 |
| 10614 | Roscoe. | Robey. | Western avenue. | 20,015 15 |
| 10616 | Hervey | Wood. | Robey. | 14,862 98 |
| 10620 | West Sixteenth | Halsted. | Throop. | 89,932 71 |
| 10621 | Central Park avenue. | Ogden avenue. | West Twenty-second. | 8,002 16 |
| 10630 | Alleys | Block 2. | Bushnell's addition. | 1,558 35 |
| 10631 | Alleys | Blocks 6 and 11. | Bushnell's addition. | 8,619 49 |
| 10632 | Alleys. | Block 23. | Bushnell's addition. | 878 00 |
| 10633 | Sibley. | West Harrison. | Macalister place. | 5,102 01 |
| 10635 | Western avenue. | West Indiana. | West Chicago avenue. | 14,932 87 |
| 10637 | Thomas | Seymour. | California avenue. | 17,159 78 |
| 10650 | West Nineteenth. | Blue Island avenue. | Ashland avenue. | 11,870 63 |
| 10652 | Clay | Halsted. | Sheffield avenue. | 7,202 88 |
| 10653 | Lincoln avenue | West Polk. | West Taylor. | 7,139 93 |
| 10654 | Hills. | North Wells. | Sedgwick. | 7,501 70 |
| 10655 | Van Horn | Ashland avenue. | Wood. | 20,815 78 |
| 10656 | Desplaines | West Adams. | West Harrison. | 9,141 81 |
| 10657 | Clinton | West Randolph. | Fulton. | 8,738 03 |
| 10658 | Rush. | Erie. | Chicago avenue. | 9,047 41 |
| 10659 | Farrell | Archer avenue. | Hickory. | 7,990 43 |
| 10673 | Gross avenue | North avenue. | Courtland. | 17,008 00 |
| 10674 | Washitenaw avenue. | North avenue. | Armitage avenue. | 23,548 58 |
| 10675 | Washitenaw avenue. | West Division. | North avenue. | 23,044 00 |
| 10678 | Rockwell. | North avenue. | Armitage avenue. | 23,569 97 |
| 10681 | Alley | Schiller to Burton place. | between N. State and Dearborn avenue. | 1,958 98 |
| 10691 | Fletcher | Evanston avenue | Halsted. | 7,646 06 |
| 10692 | West Eleventh. | Morgan. | Blue Island avenue | 949 84 |
| 10723 | Paulina | Archer avenue. | Thirty-eighth | 87,027 12 |
| 10723 | Heeley | Archer avenue. | Thirty-first. | 27,682 32 |
| 10724 | Bonfield | Archer avenue. | Thirty-first | 25,741 30 |
| 10725 | Thirty-seventh. | Lake avenue. | its eastern terminus | 1,274 04 |
| 10726 | Wood | Archer avenue. | Egan avenue. | 89,622 00 |
| 10745 | Alley | Thirty-third to Douglas avenue. | between Forrest and Calumet avenues. | 4,394 46 |
| 10746 | Alley | Thirty-eighth to Egan avenue. | between State and Dearborn. | 1,855 63 |
| 10747 | Blanche. | Noble. | Ashland avenue. | 17,842 20 |

DEPARTMENT OF PUBLIC WORKS.

STATEMENT OF ASSESSMENTS FOR WOODEN BLOCK PAVEMENT—CONTINUED.

| No. of Warrant | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|--------------------|----------------------------|---------------------------------|-------------|
| 10748 | Thirty-sixth | Ellis avenue. | Cottage Grove avenue. | \$ 2,089 20 |
| 10749 | California avenue. | West Division. | North avenue. | 26,414 84 |
| 10761 | Ogden avenue | West Twelfth. | California avenue. | 40,887 18 |
| 10762 | Francisco. | West Monroe. | West Van Buren. | 11,193 60 |
| 10768 | Hanover | Twenty-ninth | Thirty-third. | 24,625 78 |
| 10764 | West Seventeenth. | Loomis. | Wood. | 89,272 71 |
| 10771 | Van Horn | Lafin | Ashland avenue. | 10,040 28 |
| 10772 | Albany avenue. | West Lake. | West Kinzie. | 5,980 18 |
| 10800 | Alleys | In Harbne & Roman's | Subdivision | 1,114 63 |
| 10802 | Asylum place. | Elston avenue. | Leavitt. | 29,443 23 |
| 10803 | Emily | Ashland avenue. | Wood | 7,511 67 |
| 10804 | Dudley | West Chicago avenue. | Augusta. | 9,897 40 |
| 10806 | Elston avenue | Fullerton avenue. | Snow. | 9,918 90 |
| 10821 | Fifty-first | State. | Grand boulevard. | 15,617 20 |
| 10824 | Southport avenue. | Fullerton avenue | Belmont avenue. | 81,172 07 |
| 10828 | California avenue | West Twenty second. | West Twenty-sixth | 29,145 10 |
| 10829 | California avenue | Ogden avenue. | West Twenty-second. | 86,870 45 |
| 10830 | California avenue | West Twelfth. | Ogden avenue. | 20,253 27 |
| 10885 | Iglehart place | Twenty-seventh. | southern terminus. | 2,604 78 |
| 10886 | Alleys. | W. 1/2 Block 9. | Section 38, 40, 14. | 1,557 88 |
| 10837 | Alley | Ashland avenue to Paulina. | West Madison and Warren avenue. | 1,899 66 |
| 10861 | Tell court | North Wells. | Sedgwick. | 4,566 05 |
| 10862 | Concord place. | Clybourn avenue. | Sheffield avenue. | 6,879 25 |
| 10863 | Oakley avenue. | Milwaukee avenue. | Hamburg. | 16,632 66 |
| 10864 | Wilnot avenue. | Leavitt. | Armitage avenue. | 11,580 27 |
| 10865 | Hammond. | Eugene | Tell court. | 8,568 40 |
| 10866 | North Clark. | Centre. | Fullerton avenue. | 11,399 82 |
| 10867 | Colorado avenue. | West Jackson. | Central Park avenue. | 14,895 95 |
| 10868 | Florimond | North Wells. | North Franklin. | 8,660 03 |
| 10869 | Troy. | Colorado avenue. | West Jackson. | 8,045 05 |
| 10870 | Wellington avenue | North Clark. | Halsted. | 2,087 66 |
| 10873 | Deming court. | North Clark. | Lake View avenue. | 4,994 77 |
| 10874 | Alley | Block 19. | Bushnell's addition. | 1,618 60 |
| 10882 | Alleys. | Block 19. | Wolcott's addition. | 1,908 82 |
| 10883 | Burton place. | North State. | Lake Shore drive. | 8,920 08 |
| 10885 | West Twenty-second | Trumbull avenue. | Lawndale avenue. | 14,491 80 |

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|-------|---------------------|--------------------------------|--------------------------------------|-----------|
| 10886 | Sheffield avenue. | North avenue. | Clybourn avenue. | 18,111 58 |
| 10902 | Nutt. | West Sixteenth. | West Eighteenth. | 10,066 68 |
| 10903 | Canal. | West Harrison. | West Twelfth. | 18,706 52 |
| 10904 | Alley. | Thirty-second to Thirty-third. | Vernon and Rhodes avenues. | 2,203 54 |
| 10905 | Alleys. | Thirty-first to Thirty-second. | Vernon and Rhodes avenues. | 2,208 24 |
| 10906 | Alley. | Thirty-second to Thirty-third. | Rhodes and Cottage Grove avenues. | 2,194 16 |
| 10907 | Illinois. | North Franklin. | North Market. | 1,790 21 |
| 10908 | Lewis. | Clybourn avenue. | Belden avenue. | 14,820 42 |
| 10913 | Florence avenue. | Wrightwood avenue. | Diversy. | 9,087 37 |
| 10919 | California avenue. | West Chicago avenue. | West Division. | 18,761 58 |
| 10920 | Jefferson. | West Sixteenth. | West Twenty-second. | 23,818 77 |
| 10925 | Twenty-third. | State. | West Twenty-second. | 6,722 26 |
| 10935 | Hickory. | Main. | Lock. | 24,024 22 |
| 10936 | West Superior. | Leavitt. | Rockwell. | 22,670 33 |
| 10937 | Evans avenue. | Forty-second. | Forty-third. | 4,533 16 |
| 10939 | Alley. | Thirty-first to Thirty-second. | Cottage Grove and Groveland avenues. | 2,640 46 |
| 10945 | Wellington. | Halsted. | Sheffield avenue. | 10,231 68 |
| 10962 | Wood. | West Fifteenth. | Blue Island avenue. | 63,497 50 |
| 10967 | Dashiel. | Thirty-first. | Egan avenue. | 83,624 40 |
| 10968 | Ada. | C. St. L. & P. R. Ry. | C. & N. W. Ry. | 1,273 29 |
| 10969 | West Twenty-second. | Western avenue. | Trumbull avenue. | 45,561 17 |
| 10971 | Thirty-third. | C. R. I. & P. Ry. | Halsted. | 41,814 15 |
| 10983 | Seymour. | North avenue. | Armitage avenue. | 22,533 80 |
| 10984 | Rockwell. | West Division. | North avenue. | 22,492 21 |
| 10994 | Alleys. | Block 33 Wolcott's addition. | and block 50 Kinzie's addition. | 2,073 40 |
| 10995 | Robey. | Belmont avenue. | Roscoe. | 7,888 78 |
| 10996 | Ashland avenue. | Belmont avenue. | Graceland avenue. | 28,029 77 |
| 10997 | Davis. | West Division. | North avenue. | 23,459 22 |
| 11000 | Lawndale avenue. | West Twenty-sixth. | West Thirty-first. | 23,871 53 |
| 11011 | Sixty-third. | Stony Island avenue. | Cottage Grove avenue. | 20,897 32 |
| 11016 | Fullerton avenue. | Elston avenue. | Milwaukee avenue. | 68,216 41 |
| 11019 | Loomis. | West Twenty-second. | South branch Chicago river. | 9,893 32 |
| 11020 | Morgan. | West Eighteenth. | West Twenty-second. | 28,532 76 |
| 11021 | Ohio. | Market. | Kingsbury. | 8,154 53 |
| 11022 | Belden avenue. | Halsted. | Perry. | 32,015 27 |
| 11023 | North avenue. | Kedzie avenue. | Pinkham avenue. | 34,972 12 |
| 11033 | Alleys. | Block 19. | Ogden's addition. | 1,055 52 |
| 11034 | Elston avenue. | Snow. | Diversy. | 20,873 33 |
| 11041 | California avenue. | North avenue. | Milwaukee avenue. | 36,568 07 |
| 11043 | Halsted. | South branch Chicago river. | Egan avenue. | 35,838 41 |
| 11043 | Alleys. | Blocks 12 and 13. | S. F. Smith's subdivision. | 8,678 91 |
| 11046 | North avenue. | California avenue. | Kedzie avenue. | 80,898 06 |

STATEMENT OF ASSESSMENTS FOR WOODEN BLOCK PAVEMENT—CONTINUED.

| No. of Warrant | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|------------------------------|--------------------------------|--|--------------|
| 11054 | Ashtand avenue. | Graceland avenue. | Sulzer. | \$ 18,738 80 |
| 11055 | Fuller. | Archer avenue. | Cologne. | 26,781 73 |
| 11089 | Fifty-fifth. | Lake avenue. | Cottage Grove avenue. | 28,948 72 |
| 11090 | Dudley. | Hervey. | Asylum place. | 6,569 65 |
| 11091 | West Superior. | Rockwell. | Washtenaw avenue. | 4,874 46 |
| 11094 | Dania avenue. | North avenue. | Bloomingsdale road. | 11,464 96 |
| 11095 | The street. | Bickerdike. | Armour. | 2,160 90 |
| 11096 | Kedzie avenue. | Central Park avenue. | Augusta. | 28,216 31 |
| 11097 | Shelby court. | West Nineteenth. | West Twentieth. | 3,181 20 |
| 11098 | South alley. | Block 6. | Wright's addition. | 1,886 56 |
| 11099 | Alley. | Block 35. | Wolcott's addition. | 1,313 90 |
| 11100 | Alley. | Sub-block 3, Block 80. | C. T. subdivision fract'l section 29, 39, 14 | 518 44 |
| 11101 | Alley. | Block 50. | C. T. subdivision section 21, 89, 14. | 2,111 01 |
| 11102 | Alley. | Twenty-third to Twenty-fourth. | between State and Dearborn. | 1,987 41 |
| 11103 | Alley. | Twenty-fifth to Twenty-sixth. | between State and Dearborn. | 2,948 73 |
| 11104 | West, north and south alley. | Barber and Wright. | Halsted to Union. | 548 54 |
| 11105 | Alleys. | Noble to C. & N.-W. Ry. | West Division to Sloan. | 1,625 82 |
| 11106 | Alley. | Sub-block 2, Block 10. | C. T. Subdivision W. † section 5, 89, 14. | 2,585 65 |
| 11107 | Alley. | North Centre avenue to Noble. | West Chicago avenue to Fry. | 4,245 55 |
| 11108 | Alley. | S. Block 1, Block 18. | W. † section 5, 89, 14. | 2,217 85 |
| 11109 | Alley. | S. Block 2, Block 13. | W. † section 5, 89, 14. | 2,558 87 |
| 11110 | Alley. | Block 22. | Elston addition. | 2,210 05 |
| 11111 | Bonfield. | Archer avenue. | Hickory. | 12,012 65 |
| 11112 | High. | Western avenue. | Fullerton avenue. | 12,218 59 |
| 11113 | Rice. | Wood. | Lincoln. | 4,901 78 |
| 11114 | Nassau. | West Jackson. | West Van Buren. | 4,116 48 |
| 11116 | Loomis. | West Fourteenth. | West Sixteenth. | 6,099 58 |
| 11175 | Turner avenue. | Ogden avenue. | West Twenty-first. | 10,479 02 |
| 11177 | Clarinda. | Ashland avenue. | Wood. | 7,368 84 |
| 11207 | Owasco. | Rockwell. | Washtenaw avenue. | 4,720 28 |
| 11218 | Montana. | Racine avenue. | Lincoln avenue. | 11,880 61 |
| 11221 | West Twelfth. | Douglas Park boulevard. | Crawford avenue. | 14,688 04 |
| 11222 | Ruble. | West Eighteenth. | Canalport avenue. | 5,886 44 |
| 11223 | Ladin. | West Fourteenth. | West Sixteenth. | 9,956 40 |
| 11224 | Greenwich. | Robey. | Leavitt. | 12,083 53 |
| 11225 | Alley. | Block 15. | Elston addition. | 2,656 41 |

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|-------|-----------------------|----------------------------------|---------------------------------|------------|
| 11236 | Alley | Elizabeth to Ada | West Erie to West Ohio | 899 02 |
| 11237 | Coulter | Robey | Hoyle avenue | 12,814 41 |
| 11239 | Alleys | Sub-block 8, Block 5 | Sheffield's addition | 8,838 98 |
| 11280 | Alleys | Sub-block 2, Block 5 | Sheffield's addition | 3,110 55 |
| 11281 | Alleys | Sub-block 1, Block 5 | Sheffield's addition | 2,709 11 |
| 11282 | Alleys | Prairie avenue to Calumet avenue | Gano and Ray | 1,117 94 |
| 11283 | North and south alley | Block 28 | Original town | 1,816 60 |
| 11284 | Astor | Schiller | Burton place | 4,148 50 |
| 11235 | Halsted | Egan avenue | Sixty-ninth | 123,839 97 |
| 11251 | Spaulding avenue | C. B. & Q. R. R. | Ogden avenue | 17,376 05 |
| 11253 | Burton place | Dearborn avenue | North State | 1,816 58 |
| 11254 | Forty-fourth | Drexel boulevard | Ellis avenue | 4,152 06 |
| 11255 | Portland avenue | Thirty-first | Thirty-third | 11,480 64 |
| 11256 | Hamlin avenue | Ogden avenue | West Twenty-sixth | 24,807 48 |
| 11257 | West Twenty-second | Lawndale avenue | Hamlin avenue | 6,044 24 |
| 11258 | West Twenty-third | Lawndale avenue | Hamlin avenue | 8,756 57 |
| 11259 | Michigan avenue | Fifty-fifth | Sixty-third | 48,295 16 |
| 11264 | Francisco | West Lake | Carroll avenue | 5,276 98 |
| 11265 | Clayton | Morgan | Fisk | 8,788 20 |
| 11266 | Troy | West Twelfth | Douglas Park boulevard | 8,633 48 |
| 11276 | Fifty-fourth | Drexel avenue | Cottage Grove avenue | 5,669 78 |
| 11312 | East and west alley | S. 1/2 Block 82 | Section 7, 89, 14 | 1,890 21 |
| 11313 | Alley | S. 1/2 Block 41 | Section 7, 89, 14 | 1,668 95 |
| 11354 | North and south alley | W. 1/2 Block 6 | Union Park, 2d addition | 816 18 |
| 11361 | West Twenty-second | Hamlin avenue | Ogden avenue | 9,879 50 |
| 11410 | Twoomey | Sedgwick | Heine | 2,858 12 |
| 11411 | Alleys | Noble and Ashland avenue | Emma and Augusta | 4,922 75 |
| 11412 | West Division | Western avenue | Sacramento avenue | 25,172 81 |
| 11424 | Alley | Twenty-sixth to Twenty-ninth | Calumet and South Park avenues | 4,642 85 |
| 11425 | Forty-third | State | I. C. R. R. | 60,896 54 |
| 11428 | Lincoln avenue | Belmont avenue | Addition | 18,820 67 |
| 11429 | Milwaukee avenue | Western avenue | California avenue | 34,804 08 |
| 11430 | Milwaukee avenue | California avenue | Fullerton avenue | 10,179 40 |
| 11460 | Alley | Fullerton avenue | Logan square | 17,418 47 |
| 11461 | Wood | S. 1/2 Block 47 | Section 7, 89, 14 | 1,825 81 |
| 11462 | Alley | Armitage avenue | Asylum place | 11,178 17 |
| 11463 | Alley | Sedgwick to Hudson avenue | between North avenue and Eugene | 2,838 05 |
| 11464 | Alley | Eugenie to Menomonee | Mohawk and Cleveland avenue | 2,294 87 |
| 11465 | Alley | Menomonee to Wisconsin | Larabee and Mohawk | 2,948 88 |
| 11466 | Alley | Block 19 | W. 1/2 section 17, 89, 14 | 3,584 25 |
| 11468 | Alley | North avenue | Eugenie | 2,981 17 |
| | | Block 23 | Ogden's addition | 1,121 25 |

STATEMENT OF ASSESSMENTS FOR WOODEN BLOCK PAVEMENT—CONTINUED.

| No. of Ward at | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|---|-------------------------------------|---------------------------------------|-------------|
| 11474 | Park avenue. | Kedzie avenue | Homan avenue. | \$ 8,969 80 |
| 11488 | Ellis avenue | Thirty fifth. | Thirty-ninth | 21,478 78 |
| 11487 | Blanche | Fleetwood | Noble | 12,779 73 |
| 11489 | Lake Park avenue. | Twenty-ninth | Thirty-first | 7,038 82 |
| 11504 | Alley | Block 12. | Lee's addition. | 1,582 71 |
| 11547 | Alley | Block 8. | W. ½, etc., section 17, 39, 14. | 2,490 78 |
| 11587 | McKeynolds | Ashland avenue | Paulina. | 6,656 23 |
| 11588 | Lake avenue. | Fifty-first | Fifty-seventh. | 31,087 43 |
| 11591 | Superior | North Franklin. | Kingsbury | 16,487 93 |
| 11592 | Curtis | West Huron. | May. | 4,003 56 |
| 11595 | Hinsche. | Clybourn avenue. | Blackhawk. | 5,281 54 |
| 11621 | Trustee | West Kinzie. | Austin avenue. | 1,934 61 |
| 11629 | Alleys | Block 4. | Union Park addition. | 1,789 40 |
| 11630 | North and south alley | Block 46. | Original town | 1,223 97 |
| 11631 | Alleys | E. ½ Block 44 | Section 38, 40, 14. | 2,851 84 |
| 11632 | Alley | Blocks 11 and 12. | Bickerdike's addition. | 2,115 40 |
| 11633 | Wrightwood avenue | Racine avenue | C. & E. R. R. | 5,872 92 |
| 11635 | Alley | Block 1, Newberry's addition. | and block 36 Wolcott's addition. | 1,780 80 |
| 11636 | Alley | Block 12. | Kinzie's addition. | 1,070 96 |
| 11637 | Kedzie avenue. | West Twelfth. | West Twenty-second | 48,879 80 |
| 11639 | Thirty-eighth | Indiana avenue. | Grand boulevard | 7,654 63 |
| 11641 | St. Louis avenue. | West Lake. | West Kinzie. | 9,500 09 |
| 11645 | Evans court | Union | Halsted. | 7,089 75 |
| 11646 | Hope | Blue Island avenue. | Morgan. | 4,004 41 |
| 11647 | Alleys | W. ½ Blocks 21 and 30 | S. E. ½ section 17, 39, 14. | 3,013 58 |
| 11707 | Winchester avenue. | Ogden avenue. | West Folk. | 7,196 97 |
| 11715 | Alley | Eugenie to Menomonee | between Mohawk and Larrabee. | 1,952 51 |
| 11716 | Lafin. | West Sixteenth. | Blue Island avenue | 15,158 00 |
| 11717 | Oak | Larrabee. | Hawthorne avenue. | 6,910 10 |
| 11724 | West Madison | West line of viaduct. | East line of Jefferson. | 7,263 67 |
| 11735 | Alley | Lincoln to Leavitt. | between Evergreen and Potomac avenues | 5,539 40 |
| 11786 | Fremont | Willow | Bissell. | 1,844 48 |
| 11789 | Heine | Sedgwick | Cleveland avenue. | 2,840 14 |
| 11740 | Frankfort. | Robey | Hoyle avenue. | 6,409 70 |
| 11741 | Alley | Goethe to Schiller | North Clark to La Salle avenue. | 2,814 55 |
| 11743 | East, north and south alley, west of Babey. | First alley north of West Division. | 1st alley south of Evergreen avenue | 1,633 66 |

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| 11759 | Flournoy | Oakley avenue. | Leavitt. | 4,888 59 |
| 11760 | Locust | North Market. | Townsend | 4,257 47 |
| 11761 | Alleys | Crystal to Potomac avenue. | Lincoln to Robey. | 2,840 91 |
| 11769 | Wabash avenue | Fifty-fifth | Sixty-third. | 48,050 88 |
| 11813 | South alley. | Block 20. | Ashland 2d addition. | 888 45 |
| 11822 | Oakley avenue. | West Indiana avenue. | West Chicago avenue. | 15,234 19 |
| 11843 | West Twenty-third. | Central Park avenue. | Lawndale avenue. | 4,892 89 |
| 11846 | Nutt. | West Nineteenth. | West Twentieth. | 3,344 63 |
| 11847 | Eighteenth place. | Brown | May. | 12,479 87 |
| 11848 | Forty sixth place. | Vincennes avenue. | Staunton avenue. | 2,850 27 |
| 11851 | Alley | Block 16. | Kinzie's addition. | 1,180 77 |
| 11852 | Alley | Block 17. | Kinzie's addition. | 1,184 31 |
| 11853 | Cottage Grove avenue | Oakwood boulevard | Forty-fourth street. | 23,551 42 |
| 11854 | Broad. | Archer avenue | Thirty-first. | 7,986 68 |
| 11855 | Elm | Larrabee. | Chatham | 2,626 17 |
| 11871 | School | Clinton. | Jefferson. | 1,098 12 |
| 11877 | Alley | Wood to Honore. | Adams and Jackson. | 622 00 |
| 11878 | Alley | Van Buren to York. | Marshfield avenue to Ashland avenue. | 8,239 15 |
| 11880 | Alley | Thirty-first to Thirty-second. | Groveland and Lake Park avenues. | 2,199 81 |
| 11910 | Ann | Fulton | C. & N. W. Ry. | 4,433 85 |
| 11925 | Colorado avenue. | Central Park avenue. | Douglas Park boulevard. | 9,098 58 |
| 11942 | Fullerton avenue. | Milwaukee avenue | Kedzie avenue. | 22,695 88 |
| 11950 | West Lake | Homan avenue. | Crawford avenue. | 26,098 27 |
| 11951 | Alley | Block 9. | Rogers' subdivision, etc. | 1,849 43 |
| 11953 | Twenty-eighth. | Stewart avenue. | Halsted. | 26,338 86 |
| 11954 | Sacramento avenue. | West Lake | West Kinzie. | 14,017 67 |
| 11955 | Burlington | West Sixteenth. | West Eighteenth. | 7,162 05 |
| 11956 | Washburn avenue. | Wood. | Lincoln. | 7,072 05 |
| 11986 | Sawyer avenue. | Douglas Park boulevard. | West Twenty-second. | 38,466 77 |
| 12003 | Marble place. | Desplaines | Halsted. | 2,800 93 |
| 12026 | Alleys | Chicago avenue and Locust. | Townsend and Milton avenue. | 2,747 24 |
| 12064 | Twenty-four feet in middle of Michigan | North Clark. | Rush. | 5,844 60 |
| 12065 | East and west alley. | North Franklin to north and south alley | between Sigel and Schiller. | 892 47 |
| 12066 | Michigan | Rush. | St. Clair. | 7,187 63 |
| 12069 | West Twenty-first. | Halsted. | Johnson | 8,753 85 |
| 12070 | Alley | Thirty-third to Thirty-fourth. | Michigan and Indiana avenues. | 2,453 75 |
| 12073 | Alley | Twenty-ninth to Thirty-third. | State and South Dearborn. | 6,669 48 |
| 12075 | Alleys. | Block 8. | Rutler W. and W. subdivision | 1,241 64 |
| 12076 | Alleys. | Blocks 13 and 16. | D. S. Lee's addition. | 7,003 66 |
| 12091 | Alley | Block 7. | Johnston R. and S. addition. | 708 66 |
| 12094 | North and south alley | E. 1/4 Block 40 | Section 38, 40, 14. | 2,208 47 |
| 12095 | Jay | Centre. | Garfield avenue. | 4,007 54 |

STATEMENT OF ASSESSMENTS FOR WOODEN BLOCK PAVEMENT.

| No. of Warr't | NAME OF STREET. | FROM | TO | AMOUNT. |
|------------------|-----------------------|--------------------------------------|---------------------------------------|--------------|
| 10500 | Root..... | State..... | Halsted..... | \$ 28,050 44 |
| 10514 | Emerald avenue..... | Egan avenue..... | Forty-seventh..... | 42,995 34 |
| 10524 | Oakley avenue..... | West Division..... | West North avenue..... | 24,318 23 |
| 10530 | Troy..... | Fillmore..... | West Twelfth..... | 5,782 90 |
| 10532 | Huron..... | North Franklin..... | Kingsbury..... | 12,944 04 |
| 10534 | Butler..... | Twenty-fourth..... | Thirty-first..... | 36,699 84 |
| 10536 | Henry..... | Ashland avenue..... | Wood..... | 14,047 78 |
| 10539 | Kingsbury..... | Illinois..... | Erie..... | 10,105 59 |
| 10540 | Sheffield avenue..... | Clybourn avenue..... | Fullerton avenue..... | 33,892 16 |
| 10541 | Campbell avenue..... | West Polk..... | West Twelfth..... | 15,746 24 |
| 10542 | Crystal place..... | Leavitt..... | its eastern terminus..... | 14,709 48 |
| 10543 | Sangamon..... | 200 feet north of Austin avenue..... | Sangamon street viaduct..... | 2,647 88 |
| 10544 | Maplewood avenue..... | West Lake..... | Rail Road grounds..... | 8,144 84 |
| 10545 | Dudley..... | Augusta..... | West Division..... | 10,354 18 |
| 10546 | Elk Grove..... | North avenue..... | Armitage avenue..... | 28,142 59 |
| 10547 | West Erie..... | Leavitt..... | Western avenue..... | 10,367 88 |
| 10548 | Elm..... | Sedgwick..... | Larrabee..... | 8,256 08 |
| 10551 | Keenon..... | Ashland avenue..... | Wood..... | 13,368 75 |
| 10552 | Newberry avenue..... | Wright..... | West Eighteenth..... | 19,977 46 |
| 10553 | Lull place..... | Wood..... | its eastern terminus..... | 2,570 61 |
| 10554 | Dudley..... | North avenue..... | Armitage avenue..... | 27,630 99 |
| 10555 | Elk..... | Paulina..... | Bauwans..... | 2,381 97 |
| 10556 | Yeaton..... | Wood..... | Lincoln..... | 5,780 76 |
| 10557 | Moorman..... | Paulina..... | Lull place..... | 2,558 18 |
| 10558 | Jefferson..... | West Madison..... | West Kinzie..... | 14,548 55 |
| 10559 | West Seventeenth..... | Wood..... | Lincoln..... | 11,842 38 |
| 10562 | West Huron..... | Leavitt..... | Western avenue..... | 10,214 89 |
| 10577 | Alley..... | Thirty-first to Thirty-second..... | State and Wabash avenue..... | 3,105 28 |
| 10578 | Alley..... | Thirty-second to Thirty-third..... | State and Wabash avenue..... | 2,127 73 |
| 10579 | Alley..... | Thirty-first to Thirty-second..... | Wabash and Michigan avenues..... | 2,305 27 |
| 10580 | Alley..... | Thirty-second to Thirty-third..... | Wabash and Michigan avenues..... | 2,129 38 |
| 10581 | Alley..... | Thirty-first to Thirty-second..... | Indiana and Prairie avenues..... | 1,999 24 |
| 10582 | Alley..... | Thirty-first to Thirty-second..... | Prairie and Forrest avenues..... | 1,996 88 |
| 10585 | Alley..... | Twenty-ninth to Thirtieth..... | State and Wabash avenue..... | 3,407 69 |
| 10587 | Alley..... | Twenty-ninth to Ray..... | Calumet and South Park avenues..... | 1,490 86 |
| 10588 | Alley..... | Twenty-ninth to Thirtieth..... | Vernon and Cottage Grove avenues..... | 2,852 35 |

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| 10689 | Alley | In front of sundry lots in. | Block 31, Section 88, 40, 14. | 384 51 |
| 10690 | Alley | Warren avenue to Washington boulevard. | 200 feet east of Homan avenue. | 985 61 |
| 10695 | East alley | In Block 24. | Section 17, 89, 14. | 1,029 67 |
| 10696 | Alleys. | In Block 37. | Section 17, 89, 14. | 4,482 32 |
| 10601 | Pric. | Robey. | Leavitt. | 9,174 45 |
| 10608 | Ashland avenue. | Clybourn avenue. | Fullerton avenue. | 1,892 20 |
| 10607 | Potomac | Western avenue. | California avenue. | 22,798 60 |
| 10608 | Hoyme avenue | Armitage avenue. | Asylum place. | 14,431 88 |
| 10614 | Roscoe. | Robey. | Western avenue. | 20,015 15 |
| 10616 | Hervey | Wood. | Robey. | 14,862 98 |
| 10620 | West Sixteenth | Halsted. | Throop. | 39,982 71 |
| 10621 | Central Park avenue. | Ogden avenue. | West Twenty-second. | 8,002 16 |
| 10680 | Alleys | Block 2. | Bushnell's addition. | 1,558 35 |
| 10681 | Alleys | Blocks 6 and 11. | Bushnell's addition. | 8,619 49 |
| 10632 | Alleys. | Block 23. | Bushnell's addition. | 878 00 |
| 10633 | Sibley. | West Harrison. | Macalister place. | 5,102 01 |
| 10635 | Western avenue. | West Indiana. | West Chicago avenue. | 14,982 87 |
| 10637 | Thomas | Seymour. | California avenue. | 17,159 73 |
| 10650 | West Nineteenth. | Blue Island avenue | Ashland avenue. | 11,870 63 |
| 10652 | Clay | Halsted. | Sheffield avenue. | 7,202 38 |
| 10653 | Lincoln avenue | West Polk | West Taylor | 7,129 93 |
| 10654 | Hills. | North Wells. | Sedgwick. | 7,501 70 |
| 10655 | Van Horn | Ashland avenue. | Wood. | 20,815 78 |
| 10656 | Despliances | West Adams. | West Harrison. | 9,141 81 |
| 10657 | Clinton | West Randolph. | Fulton. | 3,798 02 |
| 10658 | Rush. | Eric. | Chicago avenue. | 7,980 43 |
| 10659 | Farrell | Archer avenue. | Hickory. | 9,047 41 |
| 10673 | Gross avenue | North avenue. | Courtland. | 17,008 00 |
| 10674 | Washtenaw avenue. | North avenue. | Armitage avenue. | 23,548 58 |
| 10675 | Washtenaw avenue. | West Division. | North avenue. | 23,044 00 |
| 10678 | Rockwell. | North avenue | Armitage avenue. | 23,569 97 |
| 10681 | Alley | Schiller to Burton place. | between N. State and Dearborn avenue. | 1,958 93 |
| 10691 | Fletcher | Evanston avenue | Halsted | 7,046 06 |
| 10692 | West Eleventh. | Morgan. | Blue Island avenue. | 949 84 |
| 10723 | Paulina | Archer avenue. | Thirty-eighth | 37,027 12 |
| 10728 | Heeley. | Archer avenue. | Thirty-first. | 27,682 82 |
| 10724 | Bonfield. | Archer avenue. | Thirty-first | 25,741 80 |
| 10725 | Thirty-seventh. | Lake avenue. | its eastern terminus | 1,274 04 |
| 10726 | Wood | Archer avenue. | Egan avenue. | 89,522 00 |
| 10745 | Alley | Thirty-third to Douglas avenue. | between Forrest and Calumet avenues. | 4,894 46 |
| 10746 | Alley | Thirty-eighth to Egan avenue. | between State and Dearborn. | 1,855 63 |
| 10747 | Blanche. | Noble. | Ashland avenue. | 17,942 20 |

STATEMENT OF ASSESSMENTS FOR MISCELLANEOUS STREET AND ALLEY IMPROVEMENTS—CONTINUED.

| No. of Warrant | IMPROVEMENT. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|--------------------------------|--------------------|----------------------------|-----------------------|--------------|
| 11052 | C. F. and Macad. | Pine Grove avenue. | Cornelia | Grace | \$ 18,585 88 |
| 11092 | Filling and Macad. Granite. | Baltimore avenue. | Commercial avenue. | Eighty-third | 4,080 21 |
| 11093 | | Clark. | Sixteenth | Seventeenth | 6,744 32 |
| 11228 | Curbing and Filling. | Commercial avenue. | Eighty-seventh | Nineteenth | 88,157 03 |
| 11241 | C. G. and Macad. | Ellis avenue. | Sixtieth | Sixty-third. | 8,907 77 |
| 11243 | Grading and Macad. | Hoxie avenue. | Hundred and fourth | Hundred and ninth. | 6,947 80 |
| 11243 | Grading and Macad. | Hegewisch avenue. | Hundred and thirty-first | Howard avenue | 6,010 11 |
| 11244 | C. G. and Macad. | Sixty-second | Greenwood avenue. | Cottage Grove avenue. | 8,825 82 |
| 11253 | Curbing and Macad. | Fifty-fourth | Lake avenue. | Madison | 3,186 50 |
| 11267 | C. G. and Macad. | Jackson | Fifty-fourth | Fifty-ninth. | 28,474 20 |
| 11339 | Filling and Macad. | Eighty third | B. & O. R. R. | French avenue | 4,879 75 |
| 11340 | C. G. and Macad. | Morgan | Fifty-fourth | Garfield Boulevard | 2,510 71 |
| 11341 | Granite. | Pacific avenue. | Van Buren. | Harrison | 11,345 88 |
| 11351 | Curbing and Filling. | Francisco. | West Lake. | West Kinzie | 4,449 80 |
| 11390 | Curbing. | Halsted. | South branch Chicago river | Egan avenue. | 9,870 72 |
| 11467 | C. G. and Macad. | Sixty-third. | Cottage Grove avenue | Stony Island Avenue | 26,150 23 |
| 11505 | C. F. and Macad. | Elaine place. | Roscoe | Cornelia. | 4,001 83 |
| 11684 | C. F. and Macad. | Dickey | Sixty-ninth | Seventy-second. | 10,457 65 |
| 11811 | C. F. and Macad. | Fifty-sixth | Wright | Wallace | 3,182 94 |
| 11816 | C. F. and Macad. | Park End avenue. | Sixtieth | Sixty-first. | 2,062 90 |
| 11817 | C. F. and Macad. | Forty-sixth | Grand Boulevard | Sixty-first. | 25,497 95 |
| 11823 | C. F. and Macad. | Aldine | Evanson avenue. | Drexel Boulevard. | 4,969 94 |
| 11824 | C. G. and Macad. | Monroe avenue. | Fifty-fifth | Eastern terminus | 12,137 06 |
| 11825 | C. F. and Macad. | Wright | Sixty-ninth | Fifty-eighth. | 10,798 95 |
| 11826 | C. F. and Macad. | Stewart avenue. | Sixty-ninth | Seventy-second | 8,799 78 |
| 11837 | C. F. and Macad. | Honore | Sixty-ninth | Seventy-first | 11,246 27 |
| 11838 | C. G. and Macad. | Otto | Paulina. | Seventy-second. | 3,292 27 |
| 11857 | C. F. and Macad. | Sixty-seventh | Wright | Wood | 8,500 24 |
| 11869 | C. G. and Macad. | Ellis avenue | Sixtieth. | Honore | 10,556 97 |
| 11970 | C. G. and Macad. | Forty-second place | Grand Boulevard | Sixty-third. | 6,236 41 |
| 11971 | C. F. and Macad. | Lexington | Fifty-fifth | Vincennes avenue | 703 23 |
| 11972 | C. F. and Macad. | Winter | Forty-seventh | 112½ feet north | 88,878 44 |
| 11973 | C. F. and Macad. | Champlain avenue. | Sixtieth | Fifty-fifth. | 2,596 46 |
| 11974 | Macadamizing. | Forty-third | Ashland avenue. | Sixty first | 5,051 57 |
| 12099 | C. G. and Macad. | Bond avenue. | Seventy-ninth. | C. S. L. & P. R. R. | 2,844 90 |
| 12159 | Filling and Macad. | Ontario. | Eighty-ninth. | Eightieth | 14,514 85 |
| | | | | Harbor | |

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| 10886 | Sheffield avenue. | North avenue. | Clybourn avenue. | 18,111 58 |
| 10902 | Nutt | West Sixteenth. | West Eighteenth. | 10,066 68 |
| 10903 | Canal | West Harrison. | West Twelfth. | 13,706 52 |
| 10904 | Alley | Thirty-second to Thirty-third. | Vernon and Rhodes avenues. | 2,208 54 |
| 10905 | Alleys | Thirty-first to Thirty-second. | Vernon and Rhodes avenues. | 2,208 24 |
| 10906 | Alley | Thirty-second to Thirty-third. | Rhodes and Cottage Grove avenues. | 2,194 16 |
| 10907 | Illinois. | North Franklin. | North Market. | 1,790 21 |
| 10908 | Lewis. | Clybourn avenue. | Belden avenue. | 14,820 42 |
| 10913 | Florence avenue. | Wrightwood avenue. | Diversy..... | 9,087 37 |
| 10919 | California avenue. | West Chicago avenue. | West Division. | 18,761 58 |
| 10920 | Jefferson | West Sixteenth. | West Twenty-second. | 23,818 77 |
| 10925 | Twenty-third | State | Westworth avenue. | 6,722 26 |
| 10935 | Hickory | Main | Lock | 22,024 22 |
| 10936 | West Superior | Leavitt | Rockwell | 22,870 33 |
| 10937 | Evans avenue. | Forty-second. | Forty-third | 4,533 16 |
| 10939 | Alley..... | Thirty-first to Thirty-second | Cottage Grove and Groveland avenues. | 2,040 46 |
| 10945 | Wellington | Halsted | Sheffield avenue. | 10,231 68 |
| 10962 | Wood | West Fifteenth. | Blue Island avenue. | 63,497 50 |
| 10967 | Dashiel | Thirty-first..... | Egan avenue. | 83,624 46 |
| 10968 | Ada | C. St. L. & P. R. R. | C. & N. W. Ry. | 1,273 29 |
| 10969 | West Twenty-second | Western avenue | Trumbull avenue. | 45,561 17 |
| 10971 | Thirty-third | C. R. I. & P. Ry | Halsted | 41,814 15 |
| 10983 | Seymour | North avenue | Armitage avenue. | 22,533 80 |
| 10984 | Rockwell | West Division | North avenue. | 22,492 21 |
| 10994 | Alleys | Block 33 Wolcott's addition. | and block 50 Kinzie's addition. | 2,073 40 |
| 10995 | Robey | Belmont avenue. | Roscoe | 7,888 78 |
| 10996 | Ashland avenue. | Belmont avenue. | Graceland avenue. | 23,029 77 |
| 10997 | Davis | West Division | North avenue..... | 23,489 22 |
| 11000 | Lawndale avenue | West Twenty-sixth..... | West Thirty-first..... | 23,871 53 |
| 11011 | Sixty-third | Stony Island avenue | Cottage Grove avenue. | 29,397 32 |
| 11016 | Fullerton avenue. | Elston avenue..... | Milwaukee avenue..... | 68,216 41 |
| 11019 | Loomis..... | West Twenty-second. | South branch Chicago river. | 9,893 32 |
| 11020 | Morgan | West Eighteenth | West Twenty-second. | 28,532 76 |
| 11021 | Ohio..... | Market..... | Kingsbury | 8,154 53 |
| 11022 | Belden avenue. | Halsted..... | Perry..... | 32,015 27 |
| 11023 | North avenue. | Kedzie avenue..... | Pinkham avenue. | 34,972 12 |
| 11033 | Alleys..... | Block 19. | Ogden's addition. | 1,055 52 |
| 11034 | Elston avenue | Snow..... | Diversy..... | 20,873 33 |
| 11041 | California avenue | North avenue | Milwaukee avenue | 36,568 07 |
| 11042 | Halsted | South branch Chicago river. | Egan avenue | 35,338 41 |
| 11043 | Alleys..... | Blocks 12 and 13 | S. F. Smith's subdivision. | 3,878 91 |
| 11046 | North avenue. | California avenue. | Kedzie avenue..... | 80,898 06 |

STATEMENT OF ASSESSMENTS FOR CONSTRUCTING SEWERS—CONTINUED.

| No. of Warrant | IMPROVEMENT. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|---------------------|--------------------|--|---|-------------|
| 10842 | Brick and Tile Pipe | Ontario avenue. | Eighty-ninth. | Ninety-third | \$ 4,679 56 |
| 10843 | Brick and Tile Pipe | Halsted. | Evanston avenue to Sulzer and in | Ordway Terrace to 55 ft. E. from Halsted. | 7,708 00 |
| 10844 | Tile Pipe | Argyle. | Winthrop avenue. | 140 ft. E. of Evanston avenue. | 459 80 |
| 10864 | Tile Pipe | Forty-third. | State. | Grand boulevard. | 3,590 40 |
| 10866 | Tile Pipe. | Pine Grove avenue. | Grace. | Cornelia. | 2,462 84 |
| 10876 | Tile Pipe | Lincoln avenue. | Addison. | Sulzer. | 20,773 00 |
| 10877 | Brick and Tile Pipe | Graceland avenue. | Alexander. | Southport avenue. | 4,092 25 |
| 10878 | Brick and Tile Pipe | Forty-seventh. | Halsted. | 300 feet E. of Centre avenue. | 7,575 52 |
| 10879 | Tile Pipe | South Park avenue. | Fifty-first. | Fifty-fifth. | 4,941 76 |
| 10892 | Tile Pipe | Eastwood avenue. | Sheffield avenue. | Halsted. | 1,553 41 |
| 10893 | Tile Pipe | Southport avenue. | Addison. | Roscoe. | 2,426 68 |
| 11003 | Brick and Tile Pipe | Addison. | Lake Michigan. | N. Clark. | 6,995 88 |
| 11006 | Brick | Greenwood. | Fifty-sixth. | Fifty-fourth place. | 4,018 40 |
| 11013 | Tile Pipe | Perry. | Fullerton avenue to Wrightwood avenue and in | Lill avenue from Perry street, etc. | 3,301 97 |
| 11015 | Brick | Fifty-first. | Halsted. | Wallace. | 4,320 34 |
| 11018 | Brick and Tile Pipe | Lawrence avenue. | Sheffield avenue. | Ashland avenue. | 13,277 50 |
| 11069 | Tile Pipe | Jackson avenue. | Fifty-third. | Fifty-fourth. | 1,101 96 |
| 11070 | Tile Pipe | Lake avenue. | Fifty-sixth. | Fifty-seventh. | 1,082 60 |
| 11071 | Tile Pipe | Robertson avenue. | Hope avenue. | Star avenue, etc. | 2,014 06 |
| 11072 | Tile Pipe | Buffalo avenue. | Ninety second. | Alley S. of Ninety-first. | 808 91 |
| 11073 | Brick and Tile Pipe | Buffalo avenue. | Eighty seventh. | Alley N. of Ninety-second. | 4,896 08 |
| 11074 | Tile Pipe | Fifty-ninth. | Dickey. | Stewart avenue. | 546 00 |
| 11075 | Brick and Tile Pipe | Erie avenue. | Eighty-ninth. | Eighty-seventh. | 2,826 68 |
| 11076 | Tile Pipe | Erie avenue. | Ninetieth. | Ninety-first. | 1,050 68 |
| 11077 | Tile Pipe | Woodside avenue. | Graceland avenue. | 140 feet N. Grace. | 2,137 25 |
| 11078 | Tile Pipe | Fullerton avenue. | North Park avenue. | 140 feet E. N. Clark. | 1,488 35 |
| 11079 | Tile Pipe | North Clark. | Fullerton avenue. | 225 feet N. of St. James court. | 2,184 16 |
| 11080 | Tile Pipe | Ellis avenue. | Sixty-third. | Alley S. of Sixtieth. | 3,404 15 |
| 11081 | Tile Pipe | Boulevard place. | Vincennes avenue. | Alley S. of Grand boulevard, etc. | 1,277 20 |
| 11208 | Tile Pipe | Fifty-first. | Ashland avenue. | Centre avenue. | 5,158 75 |
| 11209 | Brick | Fifty-third. | Halsted. | Morgan. | 3,111 63 |
| 11210 | Tile Pipe | Addison. | Racine avenue. | 486 feet E. of Racine avenue. | 858 86 |
| 11217 | Brick | Grand avenue. | Lake Michigan. | Ridge avenue. | 82,812 00 |
| 11319 | Tile Pipe | Larrabee. | Frederick. | 75 feet S. of Deming court. | 603 25 |
| 11240 | Tile Pipe | Olga. | Grace. | Nellie avenue. | 1,272 05 |
| 11373 | Brick | Centre avenue. | Garfield boulevard. | Fifty-ninth. | 9,468 53 |

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| 11226 | Alley | Elizabeth to Ada | West Erie to West Ohio | 899 02 |
| 11227 | Coulter | Robey | Hoyle avenue | 12,814 41 |
| 11229 | Alleys | Sub-block 2, Block 5 | Sheffield's addition | 3,833 98 |
| 11230 | Alleys | Sub-block 2, Block 5 | Sheffield's addition | 3,110 55 |
| 11231 | Alleys | Sub-block 1, Block 5 | Sheffield's addition | 2,709 11 |
| 11232 | Alleys | Prairie avenue to Calumet avenue | Gano and Ray | 1,117 94 |
| 11233 | North and south alley | Block 28 | Original town | 1,815 60 |
| 11234 | Astor | Schiller | Burton place | 4,148 50 |
| 11235 | Halsted | Egan avenue | Sixty-ninth | 122,539 97 |
| 11251 | Spaulding avenue | C. B. & Q. R. R. | Ogden avenue | 17,276 05 |
| 11253 | Burton place | Dearborn avenue | North State | 1,816 58 |
| 11254 | Forty-fourth | Drexel boulevard | Ellis avenue | 4,152 06 |
| 11255 | Portland avenue | Thirty-first | Thirty-third | 11,480 04 |
| 11256 | Hamlin avenue | Ogden avenue | West Twenty-sixth | 24,807 48 |
| 11257 | West Twenty-second | Lawndale avenue | Hamlin avenue | 6,044 24 |
| 11258 | West Twenty-third | Lawndale avenue | Hamlin avenue | 3,756 67 |
| 11259 | Michigan avenue | Fifty-fifth | Sixty-third | 48,295 16 |
| 11264 | Francisco | West Lake | Carroll avenue | 5,276 93 |
| 11265 | Clayton | Morgan | Fisk | 3,788 20 |
| 11266 | Troy | West Twelfth | Douglas Park boulevard | 8,683 48 |
| 11270 | Fifty-fourth | Drexel avenue | Cottage Grove avenue | 5,669 78 |
| 11812 | East and west alley | S. ½ Block 32 | Section 7, 89, 14 | 1,880 21 |
| 11813 | Alley | S. ½ Block 41 | Section 7, 89, 14 | 1,666 96 |
| 11854 | North and south alley | W. ½ Block 6 | Union Park, 2d addition | 816 18 |
| 11861 | West Twenty-second | Hamlin avenue | Ogden avenue | 9,379 50 |
| 11410 | Twoomey | Sedgwick | Heine | 2,868 12 |
| 11411 | Alleys | Noble and Ashland avenue | Emma and Augusta | 4,922 75 |
| 11412 | West Division | Western avenue | Sacramento avenue | 25,172 81 |
| 11424 | Alley | Twenty-sixth to Twenty-ninth | Calumet and South Park avenues | 4,542 85 |
| 11425 | Forty-third | State | I. C. R. R. | 60,896 54 |
| 11427 | Lincoln avenue | Belmont avenue | Addison | 18,820 67 |
| 11428 | Milwaukee avenue | Western avenue | California avenue | 34,804 08 |
| 11429 | Milwaukee avenue | California avenue | Fullerton avenue | 10,179 40 |
| 11430 | Milwaukee avenue | Fullerton avenue | Logan square | 17,418 47 |
| 11460 | Alley | S. ½ Block 47 | Section 7, 89, 14 | 1,825 81 |
| 11461 | Wood | Armitage avenue | Asylum place | 11,178 17 |
| 11462 | Alley | Sedgwick to Hudson avenue | North Twenty-ninth and Eugene | 2,338 05 |
| 11463 | Alley | Eugenie to Menominee | Mohawk and Cleveland avenue | 2,294 87 |
| 11464 | Alley | Menominee to Wisconsin | Larrabee and Mohawk | 2,948 88 |
| 11465 | Alley | Block 19 | W. ½ section 17, 89, 14 | 3,684 25 |
| 11466 | Block | North avenue | Eugenie | 2,941 17 |
| 11468 | Alley | Block 28 | Ogden's addition | 1,121 25 |

STATEMENT OF ASSESSMENTS FOR CONSTRUCTING SEWERS—CONTINUED.

| No. of Warr't | IMPROVEMENT. | NAME OF STREET. | FROM | TO | AMOUNT. |
|------------------|---------------------|---|--------------------------------|-------------------------------|-------------|
| 11863 | Tile Pipe | Bonney avenue. | West Twenty-sixth. | C., B. & Q. R. R. | \$ 2,356 88 |
| 11864 | Tile Pipe | Seymour. | West Chicago avenue. | W. Superior. | 2,151 35 |
| 11865 | Tile Pipe | Hastings. | 100 feet east of Robey. | Lincoln. | 717 09 |
| 11866 | Tile Pipe | Millard avenue. | West Twenty-sixth. | W. Twenty-seventh. | 1,125 29 |
| 11867 | Tile Pipe | West Twenty-fifth. | Lawndale avenue. | Bonney avenue. | 480 64 |
| 11868 | Tile Pipe | West Twenty-sixth. | Lawndale avenue. | Bonney avenue. | 478 65 |
| 11869 | Brick and Tile Pipe | Richmond. | Augusta. | Chicago avenue. | 2,914 55 |
| 11870 | Tile Pipe | Thirty-fourth court. | Wood. | Lincoln. | 942 01 |
| 11871 | Brick | Rockwell. | West Chicago avenue. | W. Superior. | 1,167 60 |
| 11872 | Tile Pipe | St. Louis avenue. | Fulton. | Kinzie. | 985 50 |
| 11873 | Tile Pipe | Ogden street from Roman to Lake avenue. | and in Turner avenue from | Ogden avenue to W. Nineteenth | 2,930 27 |
| 11874 | Tile Pipe | Homan avenue. | Fulton. | Kinzie. | 985 50 |
| 11875 | Tile Pipe | Dania avenue. | Campbell avenue. | C., P. & St. L. R. R. | 985 50 |
| 11876 | Tile Pipe | Oakley and Ens. | West North avenue. | Bloomingtondale road. | 2,610 00 |
| 11877 | Tile Pipe | Greenwich. | Fullerton and Western avenues. | Ems and Leavitt. | 5,157 67 |
| 11878 | Tile Pipe | Poplar avenue. | Hoyne avenue. | 63 feet E. of Leavitt. | 956 63 |
| 11879 | Brick | Frankfort. | Stearns. | Southward 833 feet. | 1,788 37 |
| 11880 | Tile Pipe | Lincoln. | Western avenue. | Leavitt. | 2,264 97 |
| 11881 | Brick | North avenue. | Thirty-fifth. | Thirty-fourth. | 1,441 84 |
| 11883 | Tile Pipe | East roadway Humboldt boulevard. | Dearborn avenue. | Lake Shore drive. | 1,635 64 |
| 11884 | Tile Pipe | Clairinda. | West North avenue. | Armitage avenue. | 4,961 51 |
| 11885 | Tile Pipe | California. | Ashland avenue. | Wood. | 2,249 52 |
| 11886 | Tile Pipe | West driveway Humboldt boulevard. | West North avenue. | Fullerton avenue. | 1,524 92 |
| 11887 | Brick | West Adams. | Armitage avenue. | Palmer avenue. | 4,961 51 |
| 11888 | Brick and Tile Pipe | West Adams. | Colorado avenue. | Central Park avenue. | 8,575 80 |
| 11889 | Brick and Tile Pipe | West Monroe. | Central Park avenue. | Homan avenue. | 6,599 62 |
| 11890 | Brick | Harvard. | Kedzie avenue. | Albany avenue. | 8,384 12 |
| 11891 | Tile Pipe | West driveway Humboldt boulevard. | Armitage avenue. | Palmer square. | 1,265 35 |
| 11892 | Brick and Tile Pipe | Colorado avenue. | Central Park avenue. | Homan avenue. | 2,232 83 |
| 11893 | Brick | West Chicago avenue. | California avenue. | Grand avenue. | 4,380 16 |
| 11894 | Tile Pipe | Oakley avenue. | West Chicago avenue. | West Huron. | 2,578 02 |
| 11895 | Tile Pipe | Lincoln. | West Twelfth. | West Thirteenth. | 8,484 15 |
| 11896 | Tile Pipe | Hamburg. | Western avenue. | Leavitt. | 778 80 |
| 11897 | Tile Pipe | Albany avenue. | Harrison. | Congress. | 2,416 84 |
| | | And in Congress. | Albany avenue. | Sacramento avenue. | 1,920 66 |

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| 11449 | Tile Pipe | Thirty-fourth | Wood | Lincoln | 942 01 |
| 11469 | Brick and Tile Pipe | Lexington avenue | Kedzie avenue | Sacramento avenue | 2,450 58 |
| 11470 | Brick | West Polk | Kedzie avenue | Albany avenue | 1,378 00 |
| 11471 | Tile Pipe | Maplewood avenue | West North avenue | Bloomington road | 2,610 00 |
| 11472 | Tile Pipe | Mill | Ashland avenue | Eastern terminus | 505 48 |
| 11473 | Brick | West Ohio | St. Louis | Harding avenue | 26,041 12 |
| 11475 | Tile Pipe | Baxter | Belmont avenue | Roscoe | 2,036 98 |
| 11476 | Tile Pipe | Nelson | Southport avenue | Racine avenue | 2,127 00 |
| 11477 | Brick and Tile Pipe | Sixty-seventh | Halsted | Loomis | 10,815 00 |
| 11478 | Tile Pipe | Barclay | Augusta | Division | 2,020 83 |
| 11479 | Tile Pipe | Breslau | Ems | Hamburg | 646 25 |
| 11480 | Tile Pipe | Elk Grove avenue | Hervey avenue | C. & N.-W. Ry. | 909 96 |
| 11481 | Tile Pipe | Fifty-eighth | Wallace | Wright | 1,068 11 |
| 11482 | Tile Pipe | Wood | Asylum place | C. & N.-W. Ry. | 851 30 |
| 11484 | Brick | Fifty-first | Halsted | Morgan | 4,185 40 |
| 11485 | Tile Pipe | Talman avenue | Thompson | Hirsch | 4,782 54 |
| 11486 | Tile Pipe | Darlin | Lake | Kinzie | 1,330 43 |
| 11490 | Brick | Belmont avenue | North branch of Chicago river | Milwaukee avenue | 106,134 00 |
| 11515 | Tile Pipe | Elaine place | Roscoe | Cornelia | 1,704 65 |
| 11570 | Tile Pipe | Alley | East of Drexel avenue | From Forty-third to Forty-fourth | 1,014 00 |
| 11571 | Tile Pipe | Baldwin | West Kinzie | Austin avenue | 571 00 |
| 11572 | Brick and Tile Pipe | Fillmore | California avenue | Albany avenue | 8,845 67 |
| 11573 | Brick and Tile Pipe | Indiana avenue | Fifty-first | Fifty-fifth | 6,029 40 |
| 11574 | Brick and Tile Pipe | Drexel avenue | Fifty-sixth | Fifty-ninth | 4,717 40 |
| 11581 | Brick | Milwaukee avenue | Fullerton avenue | Logan square | 8,151 42 |
| 11583 | Tile Pipe | Fifty-first | Halsted | Morgan | 2,771 88 |
| 11588 | Brick | Hamlin avenue | West Twenty-second | West Twenty-sixth | 8,865 82 |
| 11584 | Brick | Sixty-third | Halsted | Centre avenue | 8,885 29 |
| 11585 | Tile Pipe | Sangamon | Sixty-second | Sixty-third | 1,205 87 |
| 11586 | Brick | Ashland avenue | Garfield avenue | Fifty-ninth | 15,108 66 |
| 11593 | Brick | North avenue | Kedzie avenue | Grand avenue | 48,263 00 |
| 11594 | Tile Pipe | Commercial | Clybourn place | Bloomington road | 1,156 90 |
| 11596 | Brick and Tile Pipe | St. Louis avenue | West Kinzie | West Chicago avenue | 6,167 12 |
| 11616 | Brick | Illinois | Seneca | East 275 feet | 675 25 |
| 11625 | Brick | Maplewood avenue | Fullerton avenue | Humboldt avenue | 2,821 68 |
| 11626 | Tile Pipe | Armistead avenue | Kedzie avenue | Columbia avenue | 46,245 20 |
| 11627 | Tile Pipe | Bloomington road | Ashland avenue | Robey | 7,147 69 |
| 11628 | Tile Pipe | Troy | Fillmore | South 136 feet | 174 44 |
| 11638 | Tile Pipe | Sheridan | Twelfth | Fillmore | 1,075 76 |
| 11638 | Tile Pipe | Spaulding avenue | Ogden avenue | West Nineteenth | 930 02 |
| 11640 | Tile Pipe | West Polk | California avenue | Washtenaw avenue | 1,286 47 |
| 11658 | Tile Pipe | Talman avenue | 125 ft. south of Thirteenth place | West Fifteenth | 2,960 50 |

STATEMENT OF ASSESSMENTS FOR CONSTRUCTING SEWERS—CONTINUED.

| No. of Warrant | IMPROVEMENT. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|---------------------|----------------------|--|---|-------------|
| 11760 | Brick and Tile Pipe | St. Lawrence avenue. | Forty-fifth to Forty-ninth, and in Forty-ninth | ninth between Grand and Bristol boulevards. | \$ 6,989 30 |
| 11761 | Brick and Tile Pipe | Wabansia avenue. | Western avenue. | Milwaukee avenue. | 4,404 30 |
| 11762 | Tile Pipe | Drake avenue. | West Ohio | Central Park avenue. | 1,215 80 |
| 11763 | Tile Pipe | West Polk | Albany avenue. | Sacramento avenue. | 1,142 97 |
| 11764 | Brick and Tile Pipe | Vincennes avenue. | Sixty-ninth to State, and thence in | State to Sixty-fourth. | 9,562 50 |
| 11765 | Tile Pipe | Lubeck. | Western avenue. | Robey. | 4,618 52 |
| 11766 | Tile Pipe | Drexel avenue. | Sixty-third. | Alley south of Sixtieth. | 8,265 10 |
| 11767 | Tile Pipe | Wharton avenue. | Sixty-third. | Alley south of Sixtieth. | 8,265 10 |
| 11768 | Tile Pipe | Gordon. | Wentworth avenue. | La Salle. | 431 95 |
| 11769 | Brick and Tile Pipe | Lafayette avenue. | West fort of South branch of Chicago river. | West Twenty-sixth. | 11,429 44 |
| 11770 | Brick and Tile Pipe | Fifty-seventh. | Halsted. | Morgan. | 3,625 18 |
| 11771 | Tile Pipe | Sangamon. | Alley south of Garfield boulevard. | Fifty-seventh. | 1,792 58 |
| 11772 | Tile Pipe | Fifty-sixth. | Halsted. | Morgan. | 2,765 40 |
| 11773 | Tile Pipe | Fifty-third. | Drexel avenue. | 160 feet east of Cottage Grove avenue. | 831 52 |
| 11774 | Brick and Tile Pipe | Harvard | California avenue. | Sacramento | 2,052 75 |
| 11775 | Tile Pipe | Hoyne avenue. | Iowa. | Emma. | 1,657 29 |
| 11776 | Tile Pipe | Fifty-seventh. | School | Tracy avenue, etc. | 1,154 48 |
| 11777 | Tile Pipe | Stave. | Armitage avenue. | California avenue, etc. | 14,426 00 |
| 11778 | Tile Pipe | Western avenue. | Armitage avenue. | Etc. | 4,941 94 |
| 11779 | Brick and Tile Pipe | West. | Helene court. | North branch Chicago river. | 6,899 84 |
| 11780 | Tile Pipe | Crossing. | Elston avenue. | Western terminus. | 528 00 |
| 11781 | Brick and Tile Pipe | Brick | Fullerton avenue. | Humboldt boulevard. | 8,634 87 |
| 11782 | Tile Pipe | Grand avenue. | California avenue. | Augusta. | 9,914 78 |
| 11783 | Tile Pipe | Moffatt. | Western avenue. | Rockwell. | 2,619 29 |
| 11784 | Brick and Tile Pipe | Johnston avenue. | California avenue. | Humboldt Park boulevard. | 5,710 32 |
| 11785 | Tile Pipe | Sacramento avenue. | West Van Buren. | West Congress | 508 40 |
| 11786 | Tile Pipe | Atlantic | Graylock avenue. | Fiftieth. | 1,332 37 |
| 11787 | Tile Pipe | Emerald avenue. | Fifty-first. | Putnam's subdivision. | 8,460 80 |
| 11788 | Tile Pipe | Peoria. | Alley S. of Garfield boulevard. | Fifty-seventh. | 1,792 59 |
| 11789 | Tile Pipe | Ione place. | Vincennes avenue. | 180 feet east of Grand boulevard | 883 74 |
| 11790 | Tile Pipe | Matteson. | Halsted. | 891 feet west. | 767 55 |
| 11791 | Tile Pipe | Paulina. | Forty-seventh. | Forty-ninth. | 2,930 86 |
| 11792 | Tile Pipe | Green. | Fifty-sixth. | Fifty-seventh. | 1,196 05 |
| 11793 | Brick and Tile Pipe | Congress. | 221 feet west of Washtenaw ave. | C. P. & St. L. R. R. | 1,388 86 |
| 11794 | Tile Pipe | Fifty-eighth. | School | Stewart avenue. | 1,190 94 |
| 11795 | Tile Pipe | Fifty-eighth. | Wright | Stewart avenue. | 1,008 87 |

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| 11899 | Tile Pipe | Harvard..... | Washtenaw avenue..... | C. P. & St. L. R. R..... | 1,165 86 |
| 11900 | Tile Pipe | Carroll avenue..... | Kedzie avenue..... | Albany avenue..... | 1,421 09 |
| 11914 | Brick | Trumbull avenue..... | West Ohio..... | West Huron..... | 1,680 42 |
| 12098 | Brick and Tile Pipe | Fifty-seventh..... | Centre avenue..... | 75 feet east of Loomis..... | 8,144 07 |
| 12128 | Brick and Tile Pipe | Fifty-ninth..... | Centre avenue..... | Ashland avenue..... | 6,894 78 |
| 12157 | Tile Pipe | West Twenty-third..... | Lawndale avenue..... | Bonney avenue..... | 555 60 |
| 12158 | Brick | West Taylor..... | Kedzie avenue..... | Albany avenue..... | 1,877 98 |
| 12161 | Brick and Tile Pipe | Potomac avenue..... | California avenue..... | Western avenue..... | 4,870 10 |
| 12168 | Brick and Tile Pipe | Powell avenue..... | Milwaukee avenue..... | Fullerton avenue..... | 6,515 01 |
| 12166 | Tile Pipe | Aldine..... | Evanston avenue..... | 960 feet east..... | 1,610 40 |
| 12201 | Tile Pipe | Ladlin..... | Fifty-third..... | Alley north of Fairfield boulevard..... | 2,048 15 |
| 12202 | Tile Pipe | Sixteenth..... | Winter..... | 75 feet east of Aberdeen..... | 5,184 79 |
| 12218 | Brick and Tile Pipe | Sixty-first..... | Winter..... | Centre avenue..... | 10,879 68 |
| 12219 | Brick | Fifty-third..... | Ashland avenue..... | Ladlin..... | 1,892 11 |
| 12220 | Brick | Fifty-fourth..... | Justin..... | Ladlin..... | 946 05 |
| 12231 | Tile Pipe | South Park avenue..... | Addison..... | Nellie avenue..... | 1,729 15 |
| 12233 | Tile Pipe | Jansen avenue..... | Addison..... | Nellie avenue..... | 1,663 81 |
| 12233 | Tile Pipe | Perry..... | Addison..... | Nellie avenue..... | 1,663 81 |
| 12234 | Tile Pipe | Bosworth avenue..... | Addison..... | Nellie avenue..... | 1,663 81 |
| 12235 | { Extending Sewers and a New Tile Pipe } | In Michigan, Indiana and Prairie avenues..... | | | |
| ..... |  | Forty-seventh..... | State..... | Alley west of Grand boulevard..... | 5,420 27 |
| | | TOTAL..... | | | \$1,021,961 90 |

STATEMENT OF ASSESSMENTS FOR LAYING WATER SERVICE PIPES.

| No. of Warr't | NAME OF STREET. | FROM | TO | AMOUNT. |
|------------------|----------------------|----------------------|----------------------|-------------|
| 10496 | West Twenty-sixth | Western avenue | Lawndale avenue. | \$ 9,392 50 |
| 10497 | West Chicago avenue. | Leavitt | Kedzie avenue. | 21,187 50 |
| 10498 | West Chicago avenue. | Kedzie avenue | Crawford avenue. | 12,840 50 |
| 10499 | Dashiel | Thirty-first. | Egan avenue. | 4,677 10 |
| 10502 | Forty-second | Cottage Grove avenue | Vincennes avenue. | 588 00 |
| 10503 | Langley avenue. | Forty-second. | Forty-fourth. | 1,012 00 |
| 10504 | Rockwell | West Twelfth. | West Twenty-second | 8,307 50 |
| 10507 | Napoleon place. | Stewart avenue. | Wallace | 470 00 |
| 10508 | Spring | State. | Westworth avenue. | 934 00 |
| 10509 | Western avenue. | West Chicago avenue. | North avenue | 8,668 50 |
| 10515 | Root. | State. | Halsted. | 4,787 02 |
| 10516 | Emerald avenue. | Egan avenue. | Forty-seventh. | 6,860 12 |
| 10518 | Oakley avenue. | West Division. | West North avenue. | 1,564 00 |
| 10519 | Auburn. | Thirty-first. | Douglas avenue | 2,047 00 |
| 18320 | Albany avenue. | Colorado avenue | West Twelfth. | 1,771 00 |
| 10561 | Troy | Fillmore. | West Twelfth. | 795 40 |
| 10566 | Jefferson. | West Harrison | West Fifteenth. | 477 90 |
| 10567 | Lafin. | West Fourteenth | West Twenty-second. | 828 00 |
| 10568 | Campbell avenue. | West Folk | West Twelfth. | 1,064 75 |
| 10571 | West Seventeenth. | Ashland avenue | Lincoln. | 181 40 |
| 10572 | West Sixteenth. | Ashland avenue. | Wood | 1,248 60 |
| 10727 | Rockwell. | West Division. | West North avenue. | 2,366 00 |
| 10728 | Commercial. | West North avenue. | Armitage avenue | 1,638 00 |
| 10729 | Potomac avenue. | Western avenue | California avenue | 1,472 00 |
| 10780 | Rockwell. | West North avenue | Armitage avenue. | 1,384 00 |
| 10781 | Seymour. | West North avenue | Armitage avenue. | 575 00 |
| 10782 | Dickson. | West North avenue. | Bloomingtondale road | 589 00 |
| 10783 | Edgar. | West North avenue. | West Clybourn place. | 805 00 |
| 10784 | Keely | Archer avenue | Thirty-first. | 672 00 |
| 10785 | Hoyle avenue | Armitage avenue | Asylum place | 966 00 |
| 10750 | Belmont avenue. | North Clark | Lincoln avenue. | 4,821 50 |
| 10751 | Florence avenue. | Diversey. | Wrightwood avenue. | 1,480 00 |
| 10752 | Fulton | Kedzie avenue | Homan avenue. | 2,668 00 |
| 10753 | West Sixteenth. | Halsted | Throop. | 581 00 |
| 10754 | Norwood avenue | Kedzie avenue | Homan avenue. | 1,986 00 |
| 10765 | Hervey. | Wood | Robey. | 600 00 |

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|-------|----------------------|-----------------------------|-------------------|---------------------------------|--------------|
| 12160 | C. G. and Macad. | Ainslie | Evanston avenue. | Eastern terminus | 12,185 80 |
| 12165 | C. G. and Macad. | Sheffield | Graceland avenue. | Evanston avenue | 7,697 83 |
| 12206 | C. F. and Macad. | Sixty-first | Wallace | West line Lot 11, etc. | 4,729 84 |
| 12239 | Grading and Macad. | West half Lake View avenue. | Diversity | Wrightwood avenue | 2,208 28 |
| 12345 | C. G. and Macad. | Kimball avenue | Forty-eighth | 299 feet south of Forty-eighth. | 2,965 80 |
| 12868 | C. G. and Macad. | Wright | Sixty-fifth | Sixty-seventh | 8,681 05 |
| 12885 | Curbing and Filling. | Ninetieth | The Strand | Manistee avenue | 25,401 12 |
| TOTAL | | | | | \$688,840 15 |

STATEMENT OF ASSESSMENTS FOR CONSTRUCTING SEWERS.

| No. of Warrant | IMPROVEMENT. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|---------------------|-------------------------------|--|--|-----------|
| 10493 | Tile Pipe | Emerald avenue. | Egan avenue. | Fortieth | \$ 981 23 |
| 10663 | Tile Pipe | Rokeby. | Nellie avenue. | Addison | 946 85 |
| 10686 | Tile Pipe | Forty-third. | Drexel boulevard. | Illinois Central R. R. | 1,463 00 |
| 10689 | Tile Pipe | Forty-fourth. | St. Lawrence avenue. | 125 feet E. of Vincennes avenue. | 872 39 |
| 10690 | Brick and Tile Pipe | Jackson avenue. | Fifty-fifth | Fifty-ninth. | 5,092 84 |
| 10736 | Brick and Tile Pipe | Exchange avenue. | Eighty-seventh. | Ninety-first | 5,443 10 |
| 10737 | Brick and Tile Pipe | Commercial avenue. | Eighty-seventh. | Ninety-first | 5,443 10 |
| 10738 | Tile Pipe | Ninety-third. | South Chicago avenue to Houston avenue | Ad in Houston ave. to Ninety-second st. | 1,200 98 |
| 10744 | Tile Pipe | Lincoln. | Sixty-third. | Sixty seventh | 2,478 58 |
| 10760 | Tile Pipe | Clarence avenue. | Grace | Nellie avenue | 1,384 00 |
| 10798 | Brick and Tile Pipe | Ingliside and Wharton avenue. | Fifty-sixth | Fifty-fourth | 8,825 00 |
| 10832 | Tile Pipe | Ontario avenue. | South Chicago avenue | Ninety-third | 2,108 79 |
| 10853 | Tile Pipe | Byron | Sheffield avenue. | 166 feet east. | 186 20 |
| 10854 | Tile Pipe | Windsor avenue | Sheffield avenue. | Halsted. | 1,676 36 |
| 10855 | Tile Pipe | Belmont avenue. | Oak place | Sheffield avenue. | 415 80 |
| 10909 | Brick | Ninety-fifth | Calumet river to South Chicago avenue. | Ad in S. Chicago ave. from 95th to 87th sts. | 32,728 00 |
| 10910 | Brick | The Strand and Ninetieth. | Calumet river | Marquette | 27,646 00 |
| 10911 | Brick | South Park avenue. | Fifty-fifth | Sixtieth | 12,253 00 |
| 10914 | Brick and Tile Pipe | Sixtieth, Vernon avenue, etc. | Park End avenue. | Vernon avenue | 8,702 86 |
| 10928 | Tile Pipe | Melrose. | Southport avenue. | Racine avenue. | 2,003 00 |
| 10929 | Tile Pipe | Goodwin. | Lawrence avenue. | Ainslie | 1,287 50 |
| 10980 | Tile Pipe | Winthrop avenue. | Lawrence avenue. | Ainslie | 1,287 50 |
| 10931 | Tile Pipe | Otto. | Southport avenue. | C. and E. R. R. | 2,087 00 |
| 10932 | Tile Pipe | School. | Southport avenue. | Racine avenue. | 2,248 00 |
| 10933 | Tile Pipe | Herndon. | 15 feet north of Roscoe. | 125 feet S. of Melrose | 1,854 00 |

STATEMENT OF ASSESSMENTS FOR LAYING WATER SERVICE PIPES—CONTINUED.

| No. of Warrant | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|---------------------|-------------------|----------------------|-------------|
| 11247 | Colorado avenue | West Jackson | Central Park avenue | \$ 1,848 00 |
| 11247 | Concord place | Clybourn avenue | Sheffield avenue | 292 50 |
| 11248 | Canal | West Polk | West Twelfth | 297 00 |
| 11249 | Francisco | West Monroe | West Van Buren | 175 00 |
| 11250 | Igheart place | Twenty-seventh | Southern terminus | 296 50 |
| 11260 | Lincoln | West Polk | West Taylor | 1,118 00 |
| 11261 | Oakley avenue | Milwaukee avenue | Hamburg | 881 00 |
| 11262 | Wilnot avenue | Leavitt | Armitage avenue | 960 00 |
| 11263 | West Superior | Leavitt | Rockwell | 8,626 50 |
| 11269 | Thirty-third | C., R. I. & P. Ry | Halsted | 2,269 00 |
| 11270 | Thirtieth | Halsted | Stewart avenue | 818 50 |
| 11271 | Courtland | Leavitt | Robey | 620 00 |
| 11314 | Ashland avenue | Egan avenue | Fifty-fifth | 20,487 50 |
| 11408 | Hanover | Twenty-ninth | Thirty-third | 559 00 |
| 11409 | Hinsche | Clybourn avenue | Blackhawk | 210 00 |
| 11414 | Sheffield avenue | North avenue | Clybourn avenue | 537 50 |
| 11415 | Park avenue | Kedzie avenue | Homan avenue | 1,449 00 |
| 11418 | North Clark | Centre | Fullerton avenue | 630 00 |
| 11418 | Fortieth | Langley avenue | Vincennes avenue | 1,449 00 |
| 11419 | Lake avenue | Fifty-first | Fifty-seventh | 2,730 00 |
| 11421 | Fifty-fifth | Lake avenue | Cottage Grove avenue | 2,562 00 |
| 11423 | Halsted | Egan avenue | Sixty-ninth | 24,921 75 |
| 11426 | Kedzie avenue | West Van Buren | West Twelfth | 3,844 75 |
| 11459 | Hamlin avenue | West Lake | West Kinzie | 750 00 |
| 11564 | Ontario avenue | Eighty-ninth | South Chicago avenue | 3,408 00 |
| 11565 | Nineteenth | The Strand | Manistee avenue | 1,475 00 |
| 11566 | Fullerton avenue | Milwaukee avenue | Kedzie avenue | 2,842 00 |
| 11567 | Evans avenue | Forty-second | Forty-third | 882 00 |
| 11568 | Fifty-ninth | State | South Park avenue | 840 00 |
| 11569 | Commercial avenue | Ninety-sixth | Hundredth | 5,109 25 |
| 11643 | Robey | Belmont avenue | Roscoe | 1,050 00 |
| 11684 | Forrestville avenue | Forty-third | Forty-fourth | 800 00 |
| 11685 | Milwaukee avenue | Fullerton avenue | Logan square | 2,615 00 |
| 11691 | Elston avenue | Diversey | Snow | 3,505 50 |
| 11692 | West Twenty-second | Trumbull | Lawndale avenue | 1,464 00 |
| 11693 | West Madison | West Fortieth | West Forty eighth | 10,987 00 |

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| 11278 | Brick | Fifty-ninth. | Halsted | Morgan | 4,809 78 |
| 11274 | Tile Pipe | Fifty-ninth. | Centre avenue | Morgan | 2,152 18 |
| 11275 | Tile Pipe | Fifty-fourth. | Halsted | Morgan | 2,722 29 |
| 11277 | Tile Pipe | Fulton. | Homan avenue. | East 670 feet. | 1,157 18 |
| 11278 | Brick | Paulina. | Thirty-seventh. | Thirty-eighth | 1,635 72 |
| 11279 | Brick and Tile Pipe | Rockwell | North avenue. | Division. | 5,427 00 |
| 11280 | Tile Pipe | Napoleon place. | Shields avenue. | Stewart. | 451 00 |
| 11281 | Brick and Tile Pipe | Washenaw avenue. | Armitage avenue. | Bloomingdale road. | 3,143 04 |
| 11282 | Tile Pipe | Fairfield avenue. | North avenue. | Courtland. | 3,664 48 |
| 11283 | Tile Pipe | Gross avenue. | North avenue. | Courtland. | 3,664 48 |
| 11284 | Tile Pipe | Burton place. | Astor. | East 263 feet. | 480 90 |
| 11285 | Tile Pipe | Mozart. | North avenue. | Armitage avenue. | 5,524 40 |
| 11286 | Tile Pipe | Humboldt. | Armitage avenue. | Bloomingdale road | 2,674 35 |
| 11287 | Tile Pipe | Courtland. | Rockwell | California avenue. | 2,398 35 |
| 11288 | Tile Pipe | West Superior. | Leavitt. | Rockwell | 11,743 03 |
| 11289 | Tile Pipe | Campbell avenue | Between Polk and Taylor | and Fillmore and Twelfth | 1,701 07 |
| 11290 | Brick and Tile Pipe | Asylum place. | Elston avenue. | Hedwig | 3,985 24 |
| 11291 | Tile Pipe | Courtland. | Western avenue. | Rockwell | 2,374 25 |
| 11292 | Brick and Tile Pipe | West Sixteenth. | California avenue. | Rockwell | 2,067 10 |
| 11293 | Tile Pipe | Humboldt. | West North avenue. | Bloomingdale road | 3,029 90 |
| 11294 | Tile Pipe | Hervey. | Wood | Robey | 1,060 00 |
| 11295 | Brick | Hoyne avenue. | Armitage avenue. | Asylum | 3,301 50 |
| 11296 | Tile Pipe | Maplewood avenue. | West Division. | Hirsch | 1,964 30 |
| 11297 | Tile Pipe | Haven. | Shields avenue. | West 265 feet | 380 00 |
| 11298 | Tile Pipe | Shields avenue. | Thirty-second | Thirty-third. | 967 83 |
| 11299 | Tile Pipe | Alley | West of Grand boulevard | Forty-first to Thirty-ninth | 2,126 98 |
| 11300 | Tile Pipe | Forty-eighth. | Calumet avenue. | Alley W. of Grand boulevard, etc. | 791 32 |
| 11301 | Tile Pipe | Sullivan court | Lyman | South 515 feet. | 637 56 |
| 11302 | Tile Pipe | Twenty-seventh. | Quarry | Lime. | 976 93 |
| 11303 | Tile Pipe | Basil avenue. | West North avenue. | Bloomingdale road. | 2,959 00 |
| 11304 | Tile Pipe | Herley. | Lyman | Bloomingdale road. | 300 60 |
| 11305 | Brick and Tile Pipe | West Twelfth | Douglas Park boulevard. | Southward 200 feet | 5,615 23 |
| 11306 | Brick and Tile Pipe | West Twelfth | Kedzie avenue. | Homan avenue. | 2,680 00 |
| 11307 | Tile Pipe | West Sixteenth. | Western avenue. | Homan avenue. | 1,780 52 |
| 11308 | Brick and Tile Pipe | Rockwell | Armitage avenue. | Bloomingdale road. | 3,170 82 |
| 11309 | Tile Pipe | Heine | North avenue. | Armitage avenue | 5,514 40 |
| 11310 | Brick and Tile Pipe | Seymour. | Armitage avenue. | Bloomingdale road. | 3,080 65 |
| 11311 | Tile Pipe | Ambrose. | 410 feet west of Robey | Wood | 7,066 40 |
| 11315 | Tile Pipe | West Huron. | Oakley avenue | Western avenue | 3,055 91 |
| 11316 | Tile Pipe | Albany avenue. | Walnut. | Kinzie. | 1,339 00 |
| 11317 | Tile Pipe | Francisco | Monroe. | Jackson | 780 30 |
| 11362 | Tile Pipe | Alley south of Garfield boulevard. | Green. | Morgan. | 1,554 12 |

STATEMENT OF ASSESSMENTS FOR CONSTRUCTING SEWERS—CONTINUED.

| No. of Warrant | IMPROVEMENT. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|---------------------|---|--------------------------------|-------------------------------|-------------|
| 11863 | Tile Pipe | Bonney avenue. | West Twenty-sixth | C., B. & Q. R. R. | \$ 2,356 88 |
| 11864 | Tile Pipe | Seymour. | West Chicago avenue. | W. Superior. | 2,151 85 |
| 11865 | Tile Pipe | Hastings. | 100 feet east of Robey. | Lincoln. | 717 09 |
| 11866 | Tile Pipe | Millard avenue. | West Twenty-sixth | W. Twenty-seventh. | 1,125 29 |
| 11867 | Tile Pipe | West Twenty-fifth. | Lawndale avenue. | Bonney avenue. | 430 64 |
| 11868 | Tile Pipe | West Twenty-sixth. | Lawndale avenue. | Bonney avenue. | 478 65 |
| 11869 | Brick and Tile Pipe | Richmond. | Augusta. | Chicago avenue. | 2,914 55 |
| 11870 | Tile Pipe | Thirty-fourth court. | Wood. | Lincoln. | 942 01 |
| 11871 | Brick | Rockwell. | West Chicago avenue. | W. Superior. | 1,167 60 |
| 11872 | Tile Pipe | St. Louis avenue. | Fulton. | Kinzie. | 985 50 |
| 11873 | Tile Pipe | Ogden avenue from Roman to Kedzie avenue. | and in Turner avenue from | Ogden avenue to W. Nineteenth | 2,930 27 |
| 11874 | Tile Pipe | Homan avenue. | Fulton. | Kinzie. | 985 50 |
| 11875 | Tile Pipe | Harvard. | Campbell avenue. | C., P. & St. L. R. R. | 964 77 |
| 11876 | Tile Pipe | Dania avenue. | West North avenue. | Bloomington road. | 2,610 00 |
| 11877 | Tile Pipe | Oakley and Ems. | Fullerton and Western avenues. | Enes and Leavitt. | 5,157 67 |
| 11878 | Tile Pipe | Greenwich. | Hoyle avenue. | 62 feet E. of Leavitt. | 965 63 |
| 11879 | Brick | Poplar avenue. | Stearns. | Southward 833 feet | 1,788 37 |
| 11880 | Tile Pipe | Frankfort. | Western avenue. | Leavitt. | 2,364 97 |
| 11881 | Brick | Lincoln. | Thirty-fifth | Thirty-fourth. | 1,441 84 |
| 11882 | Tile Pipe | North avenue. | Dearborn avenue. | Lake Shore drive. | 1,685 64 |
| 11883 | Tile Pipe | East roadway Humboldt boulevard. | West North avenue. | Armitage avenue. | 4,961 51 |
| 11884 | Tile Pipe | Clarinda. | Ashland avenue. | Wood. | 2,249 52 |
| 11885 | Tile Pipe | California avenue. | Milwaukee avenue. | Fullerton avenue. | 1,524 92 |
| 11886 | Tile Pipe | West driveway Humboldt boulevard. | West North avenue. | Armitage avenue. | 4,961 51 |
| 11887 | Brick | East roadway Humboldt boulevard. | Armitage avenue. | Palmer avenue. | 3,575 80 |
| 11888 | Brick and Tile Pipe | West Adams. | Colorado avenue. | Central Park avenue. | 6,599 62 |
| 11889 | Brick and Tile Pipe | West Monroe. | Central Park avenue. | Homan avenue. | 5,384 12 |
| 11890 | Brick | Harvard. | Kedzie avenue. | Albany avenue. | 1,265 85 |
| 11891 | Tile Pipe | West driveway Humboldt boulevard. | Armitage avenue. | Palmer square. | 2,232 83 |
| 11892 | Brick and Tile Pipe | Colorado avenue. | Central Park avenue. | Homan avenue. | 4,330 16 |
| 11893 | Brick | West Chicago avenue. | California avenue. | Grand avenue. | 2,573 03 |
| 11894 | Tile Pipe | Oakley avenue. | West Chicago avenue. | West Huron. | 8,484 15 |
| 11895 | Tile Pipe | Lincoln. | West Twelfth. | West Thirteenth. | 778 80 |
| 11896 | Tile Pipe | Hamburg. | Western avenue. | Leavitt. | 2,416 84 |
| 11897 | Tile Pipe | Albany avenue. | Harrison. | Congress. | 1,020 66 |
| | | And in Congress. | Albany avenue. | Sacramento avenue. | |

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| 11449 | Tile Pipe | Thirty-fourth. | Wood | Lincoln. | 942 01 |
| 11469 | Brick and Tile Pipe | Lexington avenue. | Kedzie avenue. | Sacramento avenue. | 2,450 58 |
| 11470 | Brick | West Polk. | Kedzie avenue. | Albany avenue. | 1,878 00 |
| 11471 | Tile Pipe | Maplewood avenue. | West North avenue. | Bloomingdale road. | 2,610 00 |
| 11472 | Tile Pipe | Mill | Ashland avenue. | Eastern terminus. | 505 48 |
| 11473 | Brick | West Ohio. | St. Louis. | Harding avenue. | 26,041 13 |
| 11475 | Tile Pipe | Baxter. | Belmont avenue. | Roscoe. | 2,036 98 |
| 11476 | Tile Pipe | Nelson. | Southport avenue. | Racine avenue. | 2,127 00 |
| 11477 | Brick and Tile Pipe | Sixty-seventh. | Halsted | Loomis. | 10,815 00 |
| 11478 | Tile Pipe | Barclay. | Augusta | Division | 2,620 83 |
| 11479 | Tile Pipe | Breslau. | Ems. | Hamburg. | 646 25 |
| 11480 | Tile Pipe | Elk Grove avenue. | Hervey avenue. | C. & N. W. Ry. | 909 96 |
| 11481 | Tile Pipe | Fifty-eighth. | Wallace | Wright | 1,063 11 |
| 11482 | Tile Pipe | Wood. | Asylum place. | C. & N. W. Ry. | 851 30 |
| 11484 | Brick | Fifty-first. | Halsted | Morgan. | 4,185 40 |
| 11485 | Tile Pipe | Talman avenue. | Thompson | Hirsch. | 4,782 54 |
| 11486 | Tile Pipe | Darlin. | Lake. | Kinzie. | 1,830 48 |
| 11490 | Brick | Belmont avenue. | North branch of Chicago river. | Milwaukee avenue. | 106,134 00 |
| 11515 | Tile Pipe | Elaine place. | Roscoe | Cornelia | 1,704 65 |
| 11570 | Tile Pipe | Alley. | East of Drexel avenue. | From Forty-third to Forty-fourth. | 1,014 00 |
| 11571 | Tile Pipe | Baldwin. | West Kinzie | Austin avenue. | 571 00 |
| 11572 | Brick and Tile Pipe | Fillmore. | California avenue. | Albany avenue. | 8,845 67 |
| 11573 | Brick and Tile Pipe | Indiana avenue. | Fifty-first. | Fifty-fifth. | 6,029 40 |
| 11574 | Brick and Tile Pipe | Drexel avenue. | Fifty-sixth. | Fifty-ninth. | 4,717 40 |
| 11581 | Brick | Milwaukee avenue. | Fullerton avenue. | Logan square. | 2,771 88 |
| 11583 | Tile Pipe | Fifty-first. | Halsted | Morgan. | 8,151 42 |
| 11588 | Brick | Hamlin avenue. | West Twenty-second. | West Twenty-sixth. | 8,865 82 |
| 11584 | Brick | Sixty-third. | Halsted | Centre avenue. | 8,835 29 |
| 11585 | Tile Pipe | Sangamon. | Sixty-second. | Sixty-third. | 1,205 87 |
| 11586 | Brick | Ashland avenue. | Garfield avenue. | Fifty-ninth. | 15,108 66 |
| 11598 | Brick | North avenue. | Kedzie avenue. | Grand avenue. | 48,268 00 |
| 11594 | Tile Pipe | Commercial. | Clybourn place. | Bloomingdale road. | 1,156 90 |
| 11596 | Brick and Tile Pipe | St. Louis avenue. | West Kinzie | West Chicago avenue. | 6,167 12 |
| 11616 | Brick | Illinois. | Seneca | East 275 feet. | 675 25 |
| 11617 | Brick and Tile Pipe | Maplewood avenue. | Fullerton avenue. | Humboldt avenue. | 2,821 68 |
| 11625 | Brick | Armitage avenue. | Kedzie avenue. | Columbia avenue. | 46,245 20 |
| 11626 | Tile Pipe | Bloomingdale road. | Troy | Robey | 7,147 69 |
| 11627 | Tile Pipe | Spaulding avenue. | Fillmore. | South 136 feet. | 174 44 |
| 11628 | Tile Pipe | Sheridan. | Twelfth | Fillmore | 1,075 76 |
| 11638 | Tile Pipe | Spaulding avenue. | Ogden avenue. | West Nineteenth. | 930 02 |
| 11640 | Tile Pipe | West Polk. | California avenue. | Washnetaw avenue. | 1,286 47 |
| 11658 | Tile Pipe | Talman avenue. | 125 ft. south of Thirteenth place. | West Fifteenth. | 2,960 50 |

STATEMENT OF ASSESSMENTS FOR LAYING PRIVATE DRAINS—CONTINUED.

| No. of Warr't. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|--------------------------|--------------------------|--|-----------|
| 10774 | Sheffield avenue..... | North avenue | Clybourn avenue | \$ 341 00 |
| 10775 | Hammond..... | Eugenie..... | Tell court..... | 224 00 |
| 10776 | Deming court..... | North Clark | Lake View avenue | 825 00 |
| 10777 | Roscoe..... | Evanson avenue | Halsted..... | 760 00 |
| 10778 | Courtland..... | Leavitt | Robey..... | 448 00 |
| 10779 | Wilnot avenue..... | Leavitt..... | Armitage avenue | 784 00 |
| 10780 | Oakley avenue..... | Milwaukee avenue | Hamburg..... | 960 00 |
| 10781 | Milwaukee avenue..... | Fullerton avenue | Logan square | 2,201 00 |
| 10782 | Hickory..... | Main..... | Lock..... | 518 00 |
| 10783 | Farrell..... | Archer avenue..... | Hickory..... | 275 50 |
| 10784 | Central Park avenue..... | Ogden avenue..... | West Twenty-second..... | 538 00 |
| 10785 | Langley avenue..... | Forty-third | Forty-fourth..... | 828 00 |
| 10786 | Robey..... | Belmont avenue | Roscoe..... | 640 00 |
| 10787 | Noble avenue..... | North Clark | Sheffield avenue..... | 612 00 |
| 10788 | Nellie avenue..... | Evanson avenue | East line Blocks 6 and 7 Handley's subdivision | 624 00 |
| 10789 | Byron..... | Sheffield avenue | Halsted..... | 816 00 |
| 10790 | Thirty-eighth..... | Wabash avenue | Wentworth avenue..... | 160 00 |
| 10791 | Thirty-sixth..... | State..... | Indiana avenue..... | 408 50 |
| 10792 | Sheffield avenue..... | North Clark | Addison avenue..... | 1,208 00 |
| 10793 | Exchange avenue..... | Eighty-seventh..... | South Chicago avenue | 2,991 50 |
| 10794 | Elaine place..... | Roscoe..... | Cornelia..... | 810 00 |
| 10795 | Commercial avenue..... | Eighty-seventh..... | Ninety-second..... | 8,097 50 |
| 10796 | Lincoln..... | West Polk..... | West Taylor..... | 560 00 |
| 10797 | Florence avenue..... | Diversity..... | Wrightwood avenue..... | 538 00 |
| 10840 | Vincennes avenue..... | Forty-second..... | Fifty-first..... | 3,724 50 |
| 10841 | Seminary avenue..... | Fullerton avenue | Diversity..... | 684 00 |
| 10842 | Gordon terrace..... | Halsted..... | Lake Michigan..... | 624 00 |
| 10843 | Southport avenue..... | Fullerton avenue..... | Belmont avenue..... | 2,272 00 |
| 10844 | Forty-fourth..... | St. Lawrence avenue..... | Grand boulevard | 832 00 |
| 10845 | Graceland avenue..... | Lincoln avenue..... | Alexander avenue | 4,086 00 |
| 10846 | Hanover..... | Twenty-ninth..... | Thirty-third..... | 486 00 |
| 10856 | West Twenty-second..... | Trumbull avenue..... | Lawndale avenue..... | 1,104 00 |
| 10857 | Bonney avenue..... | Ogden avenue..... | West Twenty-sixth..... | 2,714 00 |
| 10858 | Ninetieth..... | The Strand..... | Manitowish..... | 405 00 |
| 10875 | Addison..... | North Clark..... | Lake Michigan..... | 2,248 75 |
| 10876 | Lincoln avenue..... | Belmont avenue..... | Addison..... | 2,870 00 |

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| 11899 | Tile Pipe | Harvard..... | Washtenaw avenue | C. P. & St. L. R. R. | 1,165 86 |
| 11900 | Tile Pipe | Carroll avenue..... | Kedzie avenue | Albany avenue..... | 1,421 09 |
| 11914 | Brick | Trumbull avenue..... | West Ohio..... | West Huron | 1,680 42 |
| 12098 | Brick and Tile Pipe | Fifty-seventh..... | Centre avenue..... | 75 feet east of Loomis | 3,144 07 |
| 12128 | Brick and Tile Pipe | Fifty-ninth..... | Centre avenue..... | Ashland avenue | 6,824 78 |
| 12157 | Tile Pipe | West Twenty-third..... | Lawndale avenue | Bonney avenue..... | 825 60 |
| 12158 | Brick | West Taylor..... | Kedzie avenue | Albany avenue..... | 1,877 98 |
| 12161 | Brick and Tile Pipe | Potomac avenue..... | California avenue..... | Western avenue..... | 4,870 10 |
| 12168 | Brick and Tile Pipe | Powell avenue..... | Milwaukee avenue..... | Fullerton avenue..... | 6,515 01 |
| 12166 | Tile Pipe | Aldine..... | Evanston avenue..... | 960 feet east..... | 1,610 40 |
| 12201 | Tile Pipe | Lafin..... | Fifty-third | Alley north of Garfield boulevard | 2,048 15 |
| 12202 | Tile Pipe | Sixteenth..... | Winter | 75 feet east of Aberdeen | 5,184 79 |
| 12218 | Brick and Tile Pipe | Sixty-first..... | Winter | Centre avenue..... | 10,879 68 |
| 12219 | Brick | Fifty-third..... | Ashland avenue..... | Lafin | 1,892 11 |
| 12220 | Brick | Fifty-fourth..... | Justin | Lafin | 946 05 |
| 12231 | Tile Pipe | South Park avenue..... | Addison | Nellie avenue..... | 1,729 15 |
| 12233 | Tile Pipe | Jansen avenue..... | Addison | Nellie avenue..... | 1,663 81 |
| 12228 | Tile Pipe | Perry..... | Addison | Nellie avenue..... | 1,663 81 |
| 12224 | Tile Pipe | Bosworth avenue..... | Addison | Nellie avenue..... | 1,663 81 |
| 12235 | Extending Sewers and a New Tile Pipe | In Michigan, Indiana and Prairie avenues | | | |
| ..... |  | Forty-seventh | State..... | Alley west of Grand boulevard | 5,420 27 |
| | | TOTAL..... | | | \$1,021,961 90 |

STATEMENT OF ASSESSMENTS FOR LAYING WATER SERVICE PIPES.

| No. of Warrant | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|---------------------|----------------------|---------------------|-------------|
| 10496 | West Twenty-sixth | Western avenue | Lawndale avenue | \$ 9,892 50 |
| 10497 | West Chicago avenue | Leavitt | Kedzie avenue | 21,187 50 |
| 10498 | West Chicago avenue | Kedzie avenue | Crawford avenue | 12,840 50 |
| 10499 | Dashiel | Thirty-first | Egan avenue | 4,677 10 |
| 10502 | Forty-second | Cottage Grove avenue | Vincennes avenue | 598 00 |
| 10503 | Langley avenue | Forty-second | Forty-fourth | 1,012 00 |
| 10504 | Rockwell | West Twelfth | West Twenty-second | 8,807 50 |
| 10507 | Napoleon place | Stewart avenue | Wallace | 470 00 |
| 10508 | Spring | State | Wentworth avenue | 924 00 |
| 10515 | Western avenue | West Chicago avenue | North avenue | 8,668 50 |
| 10516 | Root | State | Halsted | 4,787 02 |
| 10518 | Emerald avenue | Egan avenue | Forty-seventh | 6,980 12 |
| 10519 | Oakley avenue | West Division | West North avenue | 1,564 00 |
| 18520 | Auburn | Thirty-first | Douglas avenue | 2,047 00 |
| 10561 | Albany avenue | Colorado avenue | West Twelfth | 1,771 00 |
| 10566 | Troy | Fillmore | West Twelfth | 795 40 |
| 10567 | Jefferson | West Harrison | West Twelfth | 477 90 |
| 10568 | Campbell avenue | West Fourteenth | West Fifteenth | 823 00 |
| 10571 | West Seventeenth | West Polk | West Twenty-second | 1,064 75 |
| 10572 | West Sixteenth | Ashland avenue | West Twelfth | 181 40 |
| 10727 | Rockwell | Ashland avenue | Wood | 1,248 60 |
| 10728 | Commercial | West Division | West North avenue | 2,866 00 |
| 10729 | Potomac avenue | West North avenue | Armitage avenue | 1,638 00 |
| 10730 | Rockwell | West North avenue | California avenue | 1,472 00 |
| 10731 | Seymour | West North avenue | Armitage avenue | 1,384 00 |
| 10732 | Dickson | West North avenue | Armitage avenue | 575 00 |
| 10733 | Edgar | West North avenue | Bloomington road | 589 00 |
| 10734 | Keely | Archer avenue | West Clybourn place | 805 00 |
| 10735 | Hoyle avenue | Archer avenue | Thirty-first | 672 00 |
| 10736 | Belmont avenue | Armitage avenue | Asylum place | 966 00 |
| 10751 | Florence avenue | North Clark | Lincoln avenue | 4,821 50 |
| 10752 | Fulton | Diversey | Wrightwood avenue | 1,480 00 |
| 10753 | West Sixteenth | Kedzie avenue | Homan avenue | 2,668 00 |
| 10754 | Norwood avenue | Halsted | Throop | 561 00 |
| 10755 | Hervey | Kedzie avenue | Homan avenue | 1,896 00 |
| | | Wood | Robey | 600 00 |

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| 10756 | Nonfeld. | Archer avenue. | Thirty-first. | 1,820 00 |
| 10757 | Wood. | Archer avenue. | Egan avenue. | 2,067 00 |
| 10758 | Paulina. | Archer avenue. | Thirty-eighth. | 2,461 00 |
| 10759 | Flournoy. | Leavitt. | Oakley avenue. | 175 00 |
| 10765 | Charlton. | Ridge avenue. | Northern terminus. | 1,096 00 |
| 10766 | Early avenue. | Evanston avenue. | Southport avenue. | 1,318 00 |
| 10767 | Wellington. | Halsted. | Sheffield avenue. | 1,886 00 |
| 10831 | North Fifty-ninth. | Sheffield avenue. | Evanston avenue. | 408 50 |
| 10833 | Cottage Grove avenue. | Oakwood boulevard. | Fifty-first. | 9,080 00 |
| 10838 | Sheffield avenue. | North Clark. | Addison. | 1,470 00 |
| 10834 | Roscoe boulevard. | Robey. | Western avenue. | 3,960 00 |
| 10847 | Noble avenue. | North Clark. | Sheffield avenue. | 1,155 00 |
| 10848 | North Clark. | Fullerton avenue. | Diversy. | 3,496 00 |
| 10849 | Southport avenue. | Fullerton avenue. | Belmont avenue. | 4,088 50 |
| 10850 | Fletcher. | Evanston avenue. | Halsted. | 1,470 00 |
| 10851 | Nellie avenue. | Evanston avenue. | East line Block 6, Hundley's Sub-division. | 1,844 00 |
| 10859 | Roscoe. | Fullerton avenue. | Halsted. | 1,886 00 |
| 10860 | Seminary avenue. | Fullerton avenue. | Diversy. | 2,268 00 |
| 10916 | Egan avenue. | Wentworth avenue. | Halsted. | 4,410 30 |
| 10917 | California avenue. | West Chicago avenue. | West Division. | 2,045 00 |
| 10923 | Argyle. | Evanston avenue. | Eastern terminus. | 870 00 |
| 10970 | Ashland avenue. | Belmont avenue. | Sulzer. | 10,368 60 |
| 10974 | Sulzer. | Sheffield avenue. | Halsted. | 1,659 00 |
| 10975 | Pine Grove avenue. | Grace. | Cornelia. | 2,781 00 |
| 10988 | Millard avenue. | West Twenty-sixth. | West Twenty-eighth. | 2,098 00 |
| 10989 | Lawndale avenue. | West Twenty-sixth. | West Thirty-first. | 4,140 00 |
| 10990 | Davis. | West Division. | West North avenue. | 2,438 00 |
| 10991 | West North avenue. | Kedzie avenue. | Tinkham avenue. | 5,785 50 |
| 11008 | Racine avenue. | Lincoln avenue. | Addison. | 5,428 50 |
| 11017 | Graceland avenue. | Alexander avenue. | Lincoln avenue. | 5,659 50 |
| 11082 | Forty-third. | State. | Illinois Central Railroad. | 4,243 50 |
| 11083 | Deming court. | North Clark. | Lake View avenue. | 1,200 00 |
| 11084 | Elaine place. | Cornelia. | Roscoe. | 945 00 |
| 11085 | Byron. | Sheffield avenue. | North Halsted. | 2,040 00 |
| 11086 | Grace. | North Clark. | 120 feet west of Lake Michigan. | 3,877 50 |
| 11087 | Windsor avenue. | Sheffield avenue. | North Halsted. | 1,420 00 |
| 11088 | Addison. | North Clark. | Lake Michigan. | 3,735 00 |
| 11237 | Central Park avenue. | Ogden avenue. | West Twenty-second. | 756 00 |
| 11238 | Hickory. | Main. | Lock. | 819 00 |
| 11239 | Farrell. | Archer avenue. | Hickory. | 360 00 |
| 11245 | Harvard. | Campbell avenue. | California avenue. | 2,226 00 |
| 11246 | Bonney avenue. | Ogden avenue. | West Twenty-sixth. | 3,195 50 |

STATEMENT OF ASSESSMENTS FOR LAYING WATER SERVICE PIPES—CONTINUED.

| No. of Warrant | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|----------------------|--------------------|-----------------------|-------------|
| 11247 | Colorado avenue. | West Jackson | Central Park avenue. | \$ 1,848 00 |
| 11247 | Concord place. | Clybourn avenue | Sheffield avenue. | 282 50 |
| 11248 | Canal | West Polk | West Twelfth | 297 00 |
| 11249 | Francisco. | West Monroe | West Van Buren. | 175 00 |
| 11250 | Iglehart place. | Twenty-seventh | Southern terminus. | 286 50 |
| 11260 | Lincoln. | West Polk | West Taylor. | 1,113 00 |
| 11261 | Oakley avenue. | Milwaukee avenue. | Hamburg. | 961 00 |
| 11262 | Wilmut avenue | Leavitt. | Armitage avenue | 960 00 |
| 11263 | West Superior | Leavitt. | Rockwell. | 8,626 50 |
| 11269 | Thirty-third. | C., R. I. & P. Ry. | Halsted. | 2,289 00 |
| 11270 | Thirtieth. | Halsted | Stewart avenue. | 818 50 |
| 11271 | Courtland. | Leavitt. | Robey. | 620 00 |
| 11314 | Ashland avenue. | Egan avenue. | Fifty-fifth. | 20,487 50 |
| 11408 | Hanover. | Twenty-ninth | Thirty-third. | 559 00 |
| 11409 | Hinsche. | Clybourn avenue | Blackhawk. | 210 00 |
| 11414 | Sheffield avenue | North avenue. | Clybourn avenue | 537 50 |
| 11415 | Park avenue | Kedzie avenue | Homan avenue. | 1,449 00 |
| 11416 | North Clark | Centre | Fullerton avenue. | 630 00 |
| 11418 | Fortieth. | Langley avenue | Vincennes avenue. | 1,449 00 |
| 11419 | Lake avenue. | Fifty-first | Fifty-seventh. | 2,780 00 |
| 11421 | Fifty-fifth | Lake avenue. | Cottage Grove avenue. | 2,563 00 |
| 11422 | Halsted. | Egan avenue. | Sixty-ninth. | 24,921 75 |
| 11426 | Kedzie avenue. | West Van Buren. | West Twelfth. | 8,844 75 |
| 11459 | Hamlin avenue. | West Lake. | West Kinzie | 750 00 |
| 11564 | Ontario avenue. | Eighty-ninth. | South Chicago avenue. | 8,403 00 |
| 11565 | Nineteieth. | The Strand | Manistee avenue. | 1,475 00 |
| 11566 | Fullerton avenue | Milwaukee avenue. | Kedzie avenue. | 2,843 00 |
| 11567 | Evans avenue. | Forty-second. | Forty-third. | 893 00 |
| 11568 | Fifty-ninth. | State. | South Park avenue | 840 00 |
| 11569 | Commercial avenue. | Ninety-sixth | Hundredth. | 5,109 25 |
| 11643 | Robey. | Belmont avenue. | Roscoe. | 1,050 00 |
| 11684 | Forrestville avenue. | Forty-third | Forty-fourth. | 800 00 |
| 11685 | Milwaukee avenue. | Fullerton avenue | Logan square | 2,645 00 |
| 11691 | Elston avenue. | Diversey. | Snow. | 8,505 50 |
| 11692 | West Twenty-second. | Trumbull. | Lawndale avenue. | 1,464 00 |
| 11693 | West Madison. | West Fortieth. | West Forty-eighth. | 10,987 00 |

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| 11694 | Elston avenue. | Diversy | Belmont avenue. | 5,268 50 |
| 11695 | Commercial avenue. | South Chicago avenue | Ninety-sixth | 2,208 00 |
| 11696 | Ontario. | North Clark | St. Clair. | 880 00 |
| 11697 | Troy | Colorado avenue | West Jackson | 154 00 |
| 11698 | West Kinzie | Jefferson. | May. | 640 00 |
| 11704 | Forty-fourth | Drexel boulevard | Ellis avenue. | 336 00 |
| 11705 | Fifty-fourth. | Lake avenue | Madison. | 396 00 |
| 11706 | Jackson avenue. | Fifty-fourth | Fifty-ninth. | 4,875 00 |
| 11747 | Ellis avenue. | Sixtieth | Sixty-third. | 2,728 00 |
| 11748 | Greenwood avenue. | Sixtieth | Sixty-third. | 2,575 00 |
| 11749 | Fifty-fourth. | Drexel avenue. | Cottage Grove avenue. | 538 00 |
| 11762 | Sixty-second. | Greenwood avenue. | Cottage Grove avenue. | 336 00 |
| 11763 | Sacramento avenue. | West Van Buren. | West Twelfth | 1,600 00 |
| 11764 | Park End avenue. | Sixtieth | Sixty-first. | 720 00 |
| 11815 | Fullerton avenue. | Milwaukee avenue. | Elston avenue. | 5,921 00 |
| 11818 | Bonfield | Archer avenue. | Hickory | 380 00 |
| 11819 | Carroll avenue | Halsted | May. | 587 50 |
| 11862 | Rice | Wood | Lincoln. | 283 00 |
| 11863 | Turner avenue | Ogden avenue. | West Twenty-first | 950 00 |
| 11864 | Dudley. | Hervey. | Asylum place. | 299 00 |
| 11870 | Edbrooke place. | Western avenue | Powell avenue. | 161 00 |
| 11872 | Kedzie avenue | Central Park boulevard | Augusta. | 2,923 00 |
| 11873 | West Adams | Kedzie avenue. | Central Park avenue. | 8,685 50 |
| 11874 | Owasco. | Rockwell. | California avenue. | 576 00 |
| 11975 | West Congress. | Rockwell. | Albany avenue. | 2,024 00 |
| 11876 | Jane | Western avenue | California avenue. | 1,680 00 |
| 11888 | Portland avenue. | Thirty-first. | Thirty third. | 940 00 |
| 11889 | Michigan avenue. | Fifty-fifth. | Sixty-third. | 9,537 00 |
| 11890 | Lincoln avenue. | Belmont avenue. | Addison | 1,805 00 |
| 11913 | Sixty-third. | Stony Island avenue. | Cottage Grove avenue. | 5,947 20 |
| 11952 | Hamlin avenue. | West Kinzie | West Chicago avenue | 3,014 00 |
| 12056 | Monroe. | Fifty-fifth. | Fifty-eighth. | 2,789 00 |
| 12057 | Drexel avenue | Fifty-fifth. | Fifty-ninth. | 3,950 00 |
| 12058 | Honore. | Sixty-ninth | Seventy-second. | 2,608 00 |
| 12069 | West Twenty-second. | Hamlin avenue. | Ogden avenue. | 902 00 |
| 12060 | North Wood | Armitage avenue | Asylum place. | 468 00 |
| 12061 | Morgan. | Fifty-fourth. | Garfield boulevard. | 615 00 |
| 12062 | Wright. | Sixty-ninth | Seventy-second. | 2,622 00 |
| 12096 | West Lake. | Crawford avenue | West Forty-eighth. | 9,486 00 |
| 12097 | Eighteenth place | Brown. | May. | 126 00 |
| 12124 | Coulter. | Robey. | Hoyle avenue. | 615 00 |
| 12125 | Greenwich. | Robey. | Leavitt. | 860 00 |

STATEMENT OF ASSESSMENTS FOR LAYING PLANK SIDEWALKS—CONTINUED.

| No. of Warrant | Side of Street. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|--------------------|-------------------|---------------------------------|--------------------------|-----------|
| 11158 | Both | Elizabeth | Fifty-fifth. | Fifty-ninth. | \$ 716 05 |
| 11159 | Both | Fifty-sixth. | Centre avenue. | Loomis. | 657 66 |
| 11160 | Both | Fifty-seventh. | Centre avenue. | Loomis. | 657 66 |
| 11161 | Both | Fifty-eighth. | Centre avenue. | Loomis. | 657 66 |
| 11162 | Both | Fifty-ninth. | Centre avenue. | Loomis. | 221 35 |
| 11163 | Both | Homer. | Leavitt. | Oakley avenue. | 42 70 |
| 11164 | East | Loomis | Fifty-fifth. | Fifty-ninth. | 713 82 |
| 11165 | Both | Perry. | Lincoln avenue. | Diversity. | 92 46 |
| 11166 | Both | Willow. | Clybourn avenue. | Hawthorne avenue. | 395 70 |
| 11167 | Both | Fullerton avenue. | Milwaukee avenue. | Kedzie avenue. | 360 82 |
| 11168 | Both | Milwaukee avenue. | Fullerton avenue. | Logan square. | 604 42 |
| 11169 | Both | First. | Thomas. | Western terminus. | 573 34 |
| 11170 | Both | Second. | Fullerton avenue. | Western terminus. | 429 00 |
| 11171 | Both | Thirty first. | Wentworth avenue. | Halsted. | 185 07 |
| 11172 | Both | Richmond avenue. | Humboldt avenue. | Evergreen avenue. | 382 74 |
| 11173 | Both | Armitage avenue. | Irving avenue. | C., M. & St. Paul Ry. | 264 57 |
| 11174 | Both | Bonney avenue. | Colorado avenue. | West Harrison | 272 10 |
| 11175 | Both | South La Salle. | Sixty first. | Sixty-third. | 602 47 |
| 11176 | Both | Oswego. | Ashland avenue. | Paulina. | 71 60 |
| 11177 | Both | West Forty-sixth. | West Madison. | West Kinzie. | 70 00 |
| 11178 | Both | Thirty-sixth. | Butler. | Laurel. | 402 04 |
| 11179 | South | Ogden avenue. | Butler. | West Twenty-second. | 601 92 |
| 11180 | West | Escanaba avenue. | Eighty-ninth. | Ninety-first. | 294 00 |
| 11181 | North | Eighty-ninth. | Superior. | Buffalo avenue. | 56 00 |
| 11182 | West | Michigan avenue. | 86 ft. N. of Hundred and first. | Hundred and third place. | 144 40 |
| 11183 | Both | Avon place. | Robey. | Hoyne avenue. | 104 10 |
| 11184 | South | Armitage avenue. | Hosmer avenue. | Robinson avenue. | 150 40 |
| 11185 | East | Ewing avenue. | Hundred and first. | Hundred and fifth. | 564 18 |
| 11186 | Both | Erie avenue. | Eighty-seventh. | South Chicago avenue. | 1,297 77 |
| 11187 | Both | Kenwood avenue. | Forty-eighth. | Forty-ninth. | 291 90 |
| 11188 | Both | Indiana avenue. | Fifty-fifth. | Sixty first. | 397 00 |
| 11189 | Both | Asylum place. | Robey. | C. & N. W. Ry. | 106 40 |
| 11190 | Both | Emerald avenue. | Forty-first. | Forty-second. | 301 00 |
| 11191 | Both | Forty-second. | Halsted. | Wallace. | 871 08 |
| 11192 | Both | Fifty-third. | School. | C., R. I. & P. Ry. | 40 00 |
| 11193 | North | Fifty-Fourth. | State. | Wabash avenue. | 194 40 |

| | | | | |
|------------|--------------------------|-----------------------------|------------------------|--------------|
| 12857 | Fillmore..... | Western avenue..... | Rockwell..... | 490 00 |
| 12858 | Central Park avenue..... | West Twenty-second..... | West Twenty-sixth..... | 2,780 00 |
| 12859 | Calumet avenue..... | Forty-second..... | Forty-third..... | 840 00 |
| 12860 | Western avenue..... | Blue Island avenue..... | I. & M. Canal..... | 3,257 75 |
| 12861 | Twenty-eighth..... | Stewart avenue..... | Halsted..... | 345 00 |
| 12862 | Sheridan avenue..... | West Twelfth..... | Fillmore..... | 714 00 |
| 12863 | Drake avenue..... | Central Park boulevard..... | West Ohio..... | 580 50 |
| 12864 | Wabansia avenue..... | Western avenue..... | Milwaukee avenue..... | 1,953 00 |
| 12865 | Columbia place..... | West Lake..... | West Kinzie..... | 861 00 |
| TOTAL..... | | | | \$490,898 86 |

STATEMENT OF ASSESSMENTS FOR LAYING PRIVATE DRAINS.

| No. of Warrant | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|-----------------------|--------------------------|----------------------------|-----------|
| 10501 | South La Salle..... | Archer avenue..... | Twenty-second..... | \$ 160 00 |
| 10505 | Emerald avenue..... | Egan avenue..... | Forty-seventh..... | 3,100 00 |
| 10506 | Root..... | State..... | Halsted..... | 2,592 00 |
| 10517 | Oakley avenue..... | West Division..... | West North avenue..... | 1,635 25 |
| 10531 | Davis..... | West Division..... | West North avenue..... | 2,288 00 |
| 10522 | Auburn..... | Douglas avenue..... | Thirty-first..... | 1,624 00 |
| 10523 | Lincoln..... | West Twelfth..... | Blue Island avenue..... | 496 00 |
| 10549 | Troy..... | Fillmore..... | West Twelfth..... | 420 00 |
| 10563 | Ladin..... | West Fourteenth..... | West Twenty-second..... | 450 00 |
| 10564 | Campbell avenue..... | West Polk..... | West Twelfth..... | 532 00 |
| 10565 | West Seventeenth..... | Ashland avenue..... | Wood..... | 126 00 |
| 10623 | Fulton..... | Kedzie avenue..... | Homan avenue..... | 1,860 00 |
| 10624 | Whipple..... | Colorado avenue..... | Van Buren..... | 899 00 |
| 10625 | Albany avenue..... | Colorado avenue..... | West Twelfth..... | 1,085 00 |
| 10626 | Richmond..... | West Chicago avenue..... | West Division..... | 2,535 75 |
| 10627 | Keeley..... | Archer avenue..... | Thirty-first..... | 416 00 |
| 10660 | Early avenue..... | Evanston avenue..... | Southport avenue..... | 784 00 |
| 10661 | Charlton..... | Ridge avenue..... | Its northern terminus..... | 1,024 00 |
| 10768 | West Sixteenth..... | Halsted..... | Throop..... | 432 00 |
| 10769 | Wood..... | Sixteenth..... | Blue Island avenue..... | 175 00 |
| 10770 | Twenty-eighth..... | Wentworth avenue..... | Wallace..... | 660 00 |
| 10772+ | Belmont avenue..... | North Clark..... | Lincoln avenue..... | 3,887 50 |
| 10773 | West Seventeenth..... | Loomis..... | Wood..... | 170 50 |

STATEMENT OF ASSESSMENTS FOR LAYING PLANK SIDEWALKS—CONTINUED.

| No. of Warrant | Side of Street | NAME OF STREET. | FROM | TO | AMOUNT. \$ |
|-------------------|-------------------|-------------------------|----------------------------|-----------------------------|---------------|
| 11848 | Both | Wood..... | Forty-sixth..... | Forty-seventh..... | 290 52 |
| 11849 | Both | West Jackson..... | Kedzie avenue..... | Homan avenue..... | 508 05 |
| 11850 | Both | Paulina..... | Forty-sixth..... | Forty-seventh..... | 287 60 |
| 11852 | North | Forty-third..... | Indiana avenue..... | Grand boulevard..... | 227 22 |
| 11858 | West | Darlin avenue..... | West Lake..... | West Kinzie..... | 223 00 |
| 11855 | South | West Madison..... | West Forty-third..... | West Forty-fourth..... | 120 24 |
| 11856 | Both | West Huron..... | Homan avenue..... | St. Louis avenue..... | 190 58 |
| 11857 | North | West Indiana..... | West Fortieth..... | Central Park avenue..... | 231 69 |
| 11858 | Both | Ridgway avenue..... | West Chicago avenue..... | West Kinzie..... | 876 44 |
| 11859 | Both | Springfield avenue..... | West Chicago avenue..... | West Kinzie..... | 291 16 |
| 11860 | Both | Elston avenue..... | California avenue..... | Western avenue..... | 1,029 08 |
| 11899 | Both | Ridgeland avenue..... | Irving Park boulevard..... | Warren avenue..... | 718 60 |
| 11400 | Both | West Sixteenth..... | Central Park avenue..... | West Fortieth..... | 1,094 68 |
| 11402 | South | Ninety-first..... | Stony Island avenue..... | N. Y. C. & St. L. R. R..... | 342 55 |
| 11403 | Both | Ninety-third..... | Stony Island avenue..... | Jefferson avenue..... | 892 58 |
| 11404 | Both | Ninety-fourth..... | Stony Island avenue..... | Jefferson avenue..... | 294 17 |
| 11405 | West | North Clark..... | Lawrence avenue..... | North Fifty-ninth..... | 522 88 |
| 11406 | Both | Hundredth..... | Ewing avenue..... | Avenue L..... | 337 62 |
| 11506 | Both | "C"..... | Sixty-ninth..... | Seventieth..... | 306 24 |
| 11507 | East | Schell..... | Seventy-fifth..... | Seventy-sixth..... | 41 30 |
| 11508 | Both | Harvard..... | Seventy-fifth..... | Seventy-sixth..... | 407 66 |
| 11509 | Both | Grand avenue..... | North avenue..... | M. & St. P. R. R..... | 1,584 24 |
| 11510 | Both | Eighty-fourth..... | Green Bay avenue..... | Superior avenue..... | 226 44 |
| 11511 | Both | Mackinaw avenue..... | Eighty-third..... | Eighty-sixth..... | 306 98 |
| 11512 | East | "K" avenue..... | Ninety-fifth..... | Hundred and Sixth..... | 846 44 |
| 11513 | Both | Eighty-fifth..... | Green Bay avenue..... | Superior avenue..... | 146 40 |
| 11514 | Both | Dobson..... | Seventy-second..... | Seventy-third..... | 238 46 |
| 11516 | Both | Buffalo..... | Eighty-third..... | Eighty-sixth..... | 872 82 |
| 11517 | East | Avenue "L"..... | Hundred and seventh..... | Hundred and ninth..... | 814 16 |
| 11518 | Both | Torrence..... | Hundred and fourth..... | Hundred and ninth..... | 997 04 |
| 11519 | Both | Ninety-second..... | Stony Island avenue..... | Adams..... | 490 28 |
| 11520 | Both | Hundred and eighth..... | Torrence avenue..... | Bensley avenue..... | 66 00 |
| 11521 | North | Seventy-third..... | Greenwood avenue..... | South Chicago avenue..... | 127 08 |
| 11522 | East | Superior avenue..... | Eighty-eighth..... | Eighty-sixth..... | 92 20 |
| 11528 | Both | Superior avenue..... | Eighty-eighth..... | Ninety-third..... | 217 04 |
| 11524 | Both | Avenue "K"..... | Hundred and sixth..... | Hundred and eighth..... | 565 22 |

| | | | | | |
|-------|-------|---------------------|-----------------------|----------------------------|----------|
| 11198 | West | Gross avenue. | Bloomingdale road. | Courtland. | 184 80 |
| 11199 | Both | Genesee avenue. | Colorado avenue. | West Harrison. | 380 48 |
| 11200 | Both | Fifty-sixth. | Drexel avenue. | Woodlawn avenue. | 818 12 |
| 11201 | South | Colorado avenue. | Central Park avenue. | Crawford avenue. | 475 75 |
| 11202 | South | Webster avenue. | Clybourn avenue. | North branch Chicago river | 92 00 |
| 11208 | West | Springfield avenue. | Humboldt avenue. | Fullerton avenue. | 402 10 |
| 11204 | Both | Mackinaw avenue. | Eighty-ninth. | Ninety-second. | 707 88 |
| 11205 | Both | Michigan avenue. | Hundred and eleventh. | Hundred and nineteenth. | 452 06 |
| 11206 | South | Hundred and fourth. | Ewing avenue. | Avenue "K." | 197 20 |
| 11212 | South | Sixty-fifth. | Wentworth avenue. | First alley west. | 56 00 |
| 11213 | Both | Evarts avenue. | Forty-ninth. | Fiftieth. | 406 77 |
| 11214 | Both | Aberdeen. | Fifty-fifth. | Sixty-third. | 214 92 |
| 11215 | Both | Forty-eighth. | Wood. | Robey. | 464 63 |
| 11220 | Both | Central avenue. | Sixty-first. | Sixth-third. | 228 69 |
| 11236 | West | Western avenue. | West Sixteenth. | West Eighteenth. | 567 10 |
| 11318 | Both | Park avenue. | Central Park avenue. | Homan avenue. | 494 75 |
| 11319 | Both | Fifty-fourth. | Centre avenue. | Loomis. | 806 40 |
| 11320 | Both | Fifty-first. | Ashland avenue. | Wood. | 261 70 |
| 11321 | West | Goodspeed. | Forty-eighth. | Forty-ninth. | 143 40 |
| 11322 | Both | Goodspeed. | Forty-third. | Forty-fourth. | 194 17 |
| 11323 | Both | Fiftieth. | Paulina. | Forty-fourth. | 189 32 |
| 11324 | Both | Forty-seventh. | Ashland avenue. | Wood. | 237 60 |
| 11325 | Both | Sixty-fifth. | State. | Wentworth avenue. | 325 72 |
| 11326 | Both | Wright. | Sixty-fifth. | Sixty-seventh. | 484 61 |
| 11327 | Both | Wentworth avenue. | Sixty-sixth. | Sixty-seventh. | 91 12 |
| 11328 | Both | Webster avenue. | Sixty-ninth. | Seventy-first. | 220 44 |
| 11329 | Both | Perry. | Sixty-fifth. | Sixty-ninth. | 412 28 |
| 11380 | Both | Sangamon. | Fifty-fifth. | Fifty-seventh. | 220 52 |
| 11331 | Both | Sixty-seventh. | State. | Wentworth avenue. | 180 57 |
| 11332 | East | Halsted. | Fifty-fifth. | Fifty-sixth. | 192 40 |
| 11333 | North | Fifty-seventh. | Wallace. | Sherman. | 106 20 |
| 11334 | North | Forty-fifth. | Evans avenue. | Cottage Grove avenue. | 54 80 |
| 11335 | West | Emerald avenue. | Sixty-ninth. | Seventieth. | 230 98 |
| 11386 | Both | Marquette avenue. | Ninety-second. | R. I. R. R. | 84 00 |
| 11387 | Both | Ninety-third. | Escanaba. | Jeffrey avenue. | 1,915 70 |
| 11388 | South | Fortieth. | Alley W. of State. | Dearborn. | 44 00 |
| 11342 | Both | Forty-seventh. | Paulina. | Wood. | 220 15 |
| 11343 | Both | Homan avenue. | Fifty-ninth. | Sixth-fifth. | 1,000 18 |
| 11344 | Both | Crawford avenue. | Diversy. | Milwaukee avenue. | 1,504 40 |
| 11345 | Both | West Forty-first. | Van Buren. | Congress. | 106 16 |
| 11346 | Both | Humboldt avenue. | Howard avenue. | Keeney avenue. | 268 50 |
| 11347 | Both | Tripp avenue. | North avenue. | Wabansia avenue. | 388 52 |

STATEMENT OF ASSESSMENTS FOR LAYING PLANK SIDEWALKS—CONTINUED.

| No. of Warrant | Side of Street | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|-------------------|--------------------|-----------------------|-------------------------|-----------|
| 11848 | Both | Wood | Forty-sixth | Forty-seventh | \$ 220 52 |
| 11849 | Both | West Jackson | Kedzie avenue | Homan avenue | 508 05 |
| 11850 | Both | Paulina | Forty-sixth | Forty-seventh | 287 60 |
| 11852 | North | Forty-third | Indiana avenue | Grand boulevard | 227 22 |
| 11853 | West | Darlin avenue | West Lake | West Kinzie | 223 00 |
| 11855 | South | West Madison | West Forty-third | West Forty-fourth | 120 24 |
| 11856 | Both | West Huron | Homan avenue | St. Louis avenue | 190 58 |
| 11857 | North | West Indiana | West Fortieth | Central Park avenue | 231 69 |
| 11858 | Both | Ridgway avenue | West Chicago avenue | West Kinzie | 876 44 |
| 11359 | Both | Springfield avenue | West Chicago avenue | West Kinzie | 291 16 |
| 11360 | Both | Elston avenue | California avenue | Western avenue | 1,629 08 |
| 11399 | Both | Ridgeland avenue | Irving Park boulevard | Warren avenue | 718 60 |
| 11400 | Both | West Sixteenth | Central Park avenue | West Fortieth | 1,094 68 |
| 11402 | South | Ninety-first | Stony Island avenue | N. Y. C. & St. L. R. R. | 842 55 |
| 11403 | Both | Ninety-third | Stony Island avenue | Jefferson avenue | 882 58 |
| 11404 | Both | Ninety-fourth | Stony Island avenue | Jefferson avenue | 294 17 |
| 11405 | West | North Clark | Lawrence avenue | North Fifty-ninth | 522 88 |
| 11406 | Both | Hundredth | Ewing avenue | Avenue L | 887 62 |
| 11506 | Both | "C" | Sixty-ninth | Seventieth | 306 24 |
| 11507 | East | Schell | Seventy-fifth | Seventy-sixth | 41 80 |
| 11508 | Both | Harvard | Seventy-fifth | Seventy-sixth | 407 68 |
| 11509 | Both | Grand avenue | North avenue | M. & St. P. R. R. | 1,584 24 |
| 11510 | Both | Eighty-fourth | Green Bay avenue | Superior avenue | 226 44 |
| 11511 | Both | Mackinaw avenue | Eighty-third | Eighty-sixth | 808 98 |
| 11512 | East | "K" avenue | Ninety-fifth | Hundred and Sixth | 846 44 |
| 11513 | Both | Eighty-fifth | Green Bay avenue | Superior avenue | 146 40 |
| 11514 | Both | Dobson | Seventy-second | Seventy-third | 288 46 |
| 11516 | Both | Buffalo | Eighty-third | Eighty-sixth | 872 89 |
| 11517 | East | Avenue "L" | Hundred and seventh | Hundred and ninth | 814 16 |
| 11518 | Both | Torrence | Hundred and fourth | Hundred and ninth | 967 04 |
| 11519 | Both | Ninety-second | Stony Island avenue | Adams | 490 29 |
| 11520 | Both | Hundred and eighth | Torrence avenue | Bensley avenue | 96 00 |
| 11521 | North | Seventy-third | Greenwood avenue | South Chicago avenue | 127 08 |
| 11522 | East | Superior avenue | Eighty-third | Eighty-sixth | 92 20 |
| 11523 | Both | Superior avenue | Eighty-eighth | Ninety-third | 217 04 |
| 11524 | Both | Avenue "K" | Hundred and sixth | Hundred and eighth | 565 22 |

| | | | | | |
|-------|-------|---------------------|--------------------|----------------------|----------|
| 11525 | East | Avenue "M" | Hundred and sixth | Hundred and eighth | 397 20 |
| 11526 | Both | Avenue "N" | Hundred and sixth | Hundred and eighth | 44 80 |
| 11527 | Both | Avenue "O" | Hundred and sixth | Hundred and eighth | 385 96 |
| 11528 | Both | Calumet avenue | Forty-third | Forty-fourth | 278 60 |
| 11529 | West | Escanaba avenue | Eighty-seventh | Eighty-ninth | 216 45 |
| 11530 | North | Fifty-eighth | Woodlawn avenue | Madison avenue | 156 00 |
| 11531 | North | Forty-fourth | State | Vincennes avenue | 531 92 |
| 11532 | East | Kedzie avenue | West Twenty-sixth | I. & M. canal | 1,075 57 |
| 11533 | West | Mozart | Courtland | Armitage avenue | 100 00 |
| 11534 | West | Michigan avenue | Hundred and third | Hundred and eleventh | 176 92 |
| 11535 | North | Hundred and third | Avenue "K" | Indiana boulevard | 200 91 |
| 11536 | Both | Hundred and seventh | Avenue "K" | Avenue "P" | 401 16 |
| 11537 | North | Hundred and fourth | Ewing avenue | Avenue "K" | 100 00 |
| 11538 | Both | Hundred and second | Ewing avenue | Avenue "K" | 302 55 |
| 11539 | West | Park avenue | Diversity | Alley north | 60 00 |
| 11540 | Both | Tell court | North Wells | North Franklin | 66 80 |
| 11541 | Both | Baltimore avenue | Commercial avenue | Eighty-third | 805 00 |
| 11542 | Both | Johnston | West Eighteenth | Canalport avenue | 326 60 |
| 11543 | Both | Saginaw avenue | Eighty-seventh | South Chicago avenue | 318 58 |
| 11544 | Both | West Twenty-sixth | Lawndale avenue | West Forty-second | 1,357 50 |
| 11545 | West | Whipple | West Twenty-fifth | West Twenty-sixth | 50 00 |
| 11546 | North | Monroe | Kedzie avenue | Homan avenue | 300 25 |
| 11548 | South | Hundred and sixth | Indiana boulevard | Calumet river | 941 21 |
| 11551 | South | Dickens | Kimball avenue | Ballou | 20 00 |
| 11552 | North | Dickens | Kimball avenue | Ballou | 10 00 |
| 11553 | South | Franklin | Milwaukee avenue | Jefferson avenue | 192 28 |
| 11554 | West | Hamlin avenue | Armitage avenue | Bloomington avenue | 370 44 |
| 11555 | West | Irving avenue | Warner avenue | Everett avenue | 140 00 |
| 11556 | East | Keeney avenue | North avenue | Wabasha avenue | 96 60 |
| 11557 | East | Kimball avenue | Armitage avenue | Humboldt | 353 15 |
| 11558 | North | Reed | C. M. & St. P. Ry. | Jefferson avenue | 51 52 |
| 11559 | West | St. Charles avenue | Everett | Douglas | 40 00 |
| 11560 | Both | Sheridan | Dickens avenue | Humboldt avenue | 76 40 |
| 11561 | East | Selwyn avenue | Prescott | Centre | 120 00 |
| 11562 | Both | Washington | Stewart avenue | Hunting avenue | 409 02 |
| 11563 | Both | Western avenue | Diversity avenue | Humboldt avenue | 206 50 |
| 11575 | Both | Seventy-sixth | Stewart avenue | Vincennes avenue | 192 95 |
| 11576 | Both | Berkley avenue | Forty-second | 300 feet north | 120 00 |
| 11577 | North | Jane | Western avenue | Seymour | 200 00 |
| 11578 | Both | Seventy-fourth | Halsted | Morgan | 449 62 |
| 11579 | South | Sixty-seventh | Halsted | Centre avenue | 189 73 |
| 11580 | Both | Seventy-third | Halsted | Morgan | 447 82 |

| | | | | | |
|-------|-------|----------------------|----------------------------|---------------------------|----------|
| 11728 | Both | Wharton avenue. | Sixtieth. | Sixty-third. | 1,108 45 |
| 11726 | South | Fifty-sixth. | Wallace. | Sherman. | 106 20 |
| 11727 | West | Daley. | Thirty-sixth. | Thirty-eighth. | 173 54 |
| 11731 | South | West Twenty-fifth. | Fairmount avenue. | Bonney avenue. | 589 96 |
| 11723 | North | Clifton avenue. | Delaware avenue. | Butler avenue. | 40 00 |
| 11733 | Both | Ward. | Diversity. | 125 feet south. | 48 00 |
| 11734 | West | Wright. | Sunnyside avenue. | Wilson. | 48 62 |
| 11735 | South | Sixty-ninth. | Wood. | Leavitt. | 521 45 |
| 11737 | Both | Langley avenue. | Seventy-second. | Seventy-fifth. | 752 05 |
| 11738 | North | Sixty-first. | South Park avenue. | Cottage Grove avenue. | 156 00 |
| 11743 | South | Roscoe. | Sheffield avenue. | Racine avenue. | 222 68 |
| 11744 | North | Oakdale avenue. | Evanston avenue. | Waubun avenue. | 219 78 |
| 11745 | West | Arnold. | Root. | No. 4054 Arnold. | 53 20 |
| 11746 | North | West Chicago avenue. | West Fortieth. | West Forty-sixth. | 1,133 93 |
| 11784 | North | Forty-fifth. | Drexel boulevard. | Alley 250 feet east. | 100 00 |
| 11789 | Both | Forty-seventh. | Halsted. | Ashland avenue. | 4,590 08 |
| 11790 | Both | Robey. | Forty-seventh. | Fifty-first. | 789 13 |
| 11791 | Both | Peoria. | Fifty-third. | Fifty-seventh. | 545 63 |
| 11792 | Both | Hegewisch avenue. | Hundred and thirty-second. | Hundred and thirty-sixth. | 545 63 |
| 11793 | Both | Jefferson avenue. | Ninety-first. | Ninety-third. | 1,497 98 |
| 11794 | West | Avenue "J" | Ninety-fifth. | Ninety-third. | 661 85 |
| 11795 | Both | Adams avenue. | Ninety-first. | Hundred and sixth. | 761 98 |
| 11796 | South | Armitage avenue. | Howard avenue. | Ninety-second. | 399 20 |
| 11797 | South | Archer avenue. | Blanchard avenue. | Belt Line R. R. | 414 40 |
| 11798 | Both | Washington. | Ninety-first. | Ninety-fifth. | 452 94 |
| 11799 | West | Coles avenue. | Seventy-fifth. | Ninety-ninth. | 764 10 |
| 11800 | Both | Drexel avenue. | Seventy-fifth. | Seventy-ninth. | 774 20 |
| 11801 | North | Eighty-fourth. | Seventy-seventh. | Seventy-eighth. | 215 46 |
| 11802 | South | Eighty-third. | Halsted. | Morgan. | 385 24 |
| 11803 | Both | Peoria. | Halsted. | Morgan. | 385 24 |
| 11804 | Both | Rhodes avenue. | Eighty-third. | Eighty-fourth. | 363 46 |
| 11805 | Both | Seventy-first. | Seventy-first. | South Chicago avenue. | 279 62 |
| 11806 | East | Halsted. | Cottage Grove avenue | L. C. R. R. | 604 62 |
| 11807 | South | Sangamon. | Seventy-fifth. | Eighty-first. | 1,143 45 |
| 11808 | Both | Ellis avenue. | Eighty-third. | Eighty-fourth. | 403 92 |
| 11809 | East | Greenwood avenue. | Sixtieth. | Sixty-third. | 1,125 46 |
| 11810 | North | Sixty-first. | Sixtieth. | Sixty-third. | 580 05 |
| 11812 | South | West Monroe. | Cottage Grove avenue | Madison avenue. | 651 95 |
| 11814 | Both | Evergreen avenue | Kedzie avenue. | Homan avenue. | 80 75 |
| 11820 | Both | Ashland avenue. | Western avenue. | Maplewood avenue. | 314 66 |
| 11840 | Both | Ada. | Forty-seventh. | Fifty-third. | 383 90 |
| 11842 | Both | Eighty-third. | Fifty-fifth. | Fifty-ninth. | 836 68 |
| | | | B. & O. R. R. | French avenue. | 908 72 |

STATEMENT OF ASSESSMENTS FOR LAYING PLANK SIDEWALKS—CONTINUED.

| No. of Warr't | Side of Street | NAME OF STREET. | FROM | TO | AMOUNT. |
|------------------|-------------------|-----------------------|----------------------------------|---------------------------------|-----------|
| 12085 | North | Seventy-second. | Yates avenue | Jeffrey avenue. | \$ 766 94 |
| 12086 | West | Railroad avenue. | Seventy-first. | Seventy-fifth. | 850 84 |
| 12088 | Both | Graham avenue. | Lawrence avenue. | Perry. | 349 18 |
| 12089 | Both | Paxton avenue. | Paxton third. | Seventy-fifth. | 760 83 |
| 12090 | North | Barry avenue. | Halsted. | Evansville avenue. | 298 80 |
| 12093 | East | Cottage Grove avenue. | On part lots 10 and 11, block 6. | Drexel and Smith's subdivision. | 44 00 |
| 12098 | Both | St. Louis avenue. | West Madison. | Colorado avenue. | 647 08 |
| 12101 | Both | North Troy. | Central Park avenue | 310 feet south. | 251 48 |
| 12102 | Both | West Fifteenth. | Morgan. | Centre avenue. | 284 58 |
| 12108 | South | Courtland. | Howard avenue. | Columbia avenue. | 153 48 |
| 12108 | Both | Ogden avenue. | Rockwell. | California avenue. | 796 78 |
| 12155 | Both | Wallace. | Thirty-first. | Egan avenue. | 951 96 |
| 12231 | Both | Turner avenue. | Fifty-seventh. | Fifty-ninth. | 768 45 |
| 12232 | Both | Fifty-ninth. | Eberhart avenue. | Turner avenue. | 661 95 |
| 12233 | Both | West Twenty-third. | Central Park avenue. | Lawndale avenue. | 99 84 |
| 12235 | Both | Twenty-third. | State. | Wentworth avenue. | 125 95 |
| 12236 | Both | Taylor. | State. | Pacific avenue. | 583 73 |
| 12265 | West | Vincennes avenue. | Forty-third. | Forty-fourth. | 318 94 |
| 12269 | Both | Lawndale. | West Twenty-eighth. | West branch Chicago river. | 740 66 |
| 12271 | Both | Morgan. | Wright. | C. B. & Q. R. R. | 850 79 |
| 12273 | Both | Pacific avenue. | Van Buren. | Harrison. | 519 90 |
| 12274 | Both | Clybourn avenue. | Larrabee. | Fullerton avenue. | 4,848 80 |
| 12275 | Both | Illinois. | Market. | Kingsbury. | 448 84 |
| 12276 | Both | Nineteenth. | State. | Clark. | 576 54 |
| 12280 | Both | South Dearborn. | Thirty-eighth. | Egan avenue. | 70 00 |
| 12281 | Both | Elizabeth court. | Wallace. | C. R. I. & P. Ry. | 187 60 |
| 12305 | Both | Grand avenue. | Western avenue. | California avenue. | 2,716 48 |
| 12306 | Both | Emerald avenue. | Thirty-third. | Egan avenue. | 287 85 |
| 12307 | Both | Thirty-fifth court. | Oakley avenue. | Western. | 222 12 |
| 12308 | Both | Champlain avenue. | Seventy-second. | Seventy-fourth. | 287 00 |
| 12309 | South | Eighty-seventh. | Halsted. | Vincennes avenue. | 124 40 |
| 12310 | West | Halsted. | Eighty-seventh. | Eighty-eighth. | 177 73 |
| 12337 | Both | Harrison. | Rockwell. | California avenue. | 289 92 |
| 12338 | Both | Fuller. | Archer avenue. | Cologne. | 1,348 75 |
| 12339 | Both | Huron. | Franklin. | Kingsbury. | 597 65 |
| 12340 | Both | Hickory. | Lock. | Main. | 1,005 66 |

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|-------|-------|--------------------|-----------------------------|------------------------|----------|
| 11906 | East | Aberdeen. | Sixty-seventh | Sixty-eighth | 70 00 |
| 11907 | West | Aberdeen. | Sixty-seventh | Sixty-ninth | 288 50 |
| 11908 | Both | Evans avenue. | Sixty-seventh | Sixty-ninth | 638 72 |
| 11909 | South | Diversy. | Western avenue | Hofman avenue. | 842 06 |
| 12000 | North | Sixty-eighth. | Aberdeen. | Carpenter. | 49 84 |
| 12001 | South | West Twenty-sixth. | West Forty-second. | Belt Line Railway. | 612 80 |
| 12002 | East | Washington avenue. | Centre. | Irving Park boulevard. | 303 54 |
| 12004 | North | Diversy. | Lincoln. | Clybourn avenue. | 988 87 |
| 12005 | South | Diversy. | Southport avenue. | Clybourn avenue. | 622 90 |
| 12006 | Both | Belden avenue. | Ward. | Perry. | 420 16 |
| 12007 | Both | Belmont avenue. | North Clark. | Lincoln avenue. | 1,629 81 |
| 12008 | Both | Fletcher. | Halsted. | Evanson avenue. | 253 70 |
| 12009 | Both | West Polk. | South branch Chicago river. | Blue Island avenue. | 718 54 |
| 12010 | Both | Southport avenue. | Fullerton avenue. | Lincoln avenue. | 244 89 |
| 12011 | Both | North Fifty-ninth | Sheffield avenue. | Evanson avenue. | 820 47 |
| 12012 | Both | Jefferson. | West Harrison. | West Twelfth. | 378 05 |
| 12013 | Both | Tell court. | Sedgwick. | North Franklin. | 295 15 |
| 12014 | Both | West Harrison | Canal. | Blue Island avenue. | 1,190 75 |
| 12015 | Both | Elm. | Sedgwick. | Larrabee. | 497 84 |
| 12016 | Both | Townsend. | Erie. | Chicago avenue. | 930 60 |
| 12017 | Both | Hill. | North Wells. | Sedgwick. | 457 87 |
| 12018 | Both | Sheffield avenue. | Clybourn avenue | Centre. | 184 68 |
| 12019 | South | Centre. | North Clark. | Southport avenue. | 412 10 |
| 12020 | East | Robinson avenue. | West Division. | North avenue. | 693 60 |
| 12021 | Both | Roberts. | Eastman. | Western terminus. | 895 76 |
| 12022 | East | Vincennes avenue. | Schorling's subdivision. | Eighty-third. | 280 97 |
| 12023 | Both | West Polk. | California avenue. | Albany avenue. | 191 32 |
| 12024 | Both | West Van Buren. | Homan avenue. | Cross. | 317 68 |
| 12033 | Both | Crawford avenue. | Irving Park boulevard | Clybourn boulevard. | 1,128 10 |
| 12067 | Both | Thirty-sixth. | State. | Indiana avenue. | 561 56 |
| 12068 | Both | Wright. | Seventieth. | Seventy-first | 398 50 |
| 12071 | West | Langley avenue. | Forty-third. | Forty-fourth | 86 50 |
| 12072 | Both | Fullerton avenue. | Lincoln avenue. | Southport avenue. | 715 75 |
| 12074 | South | Forty-first. | Prairie avenue. | Alley east. | 64 16 |
| 12077 | West | Yates avenue | Sixty-eighth | Seventy-first | 576 00 |
| 12078 | South | Thirty-third. | Champaign. | Leavitt. | 99 60 |
| 12079 | North | Seventy-second. | Stony Island avenue | Cregier avenue. | 486 86 |
| 12080 | West | Seipp avenue. | Seventy-first | Seventy-third. | 411 87 |
| 12081 | North | Franklin. | Woodward. | Kedzie avenue. | 249 20 |
| 12082 | Both | Flournoy. | Sacramento avenue. | Francisco. | 95 20 |
| 12083 | Both | Johnston avenue. | California avenue. | The boulevard. | 443 72 |
| 12084 | Both | Holt. | North avenue | Wabansia avenue. | 126 00 |

STATEMENT OF ASSESSMENTS FOR LAYING PLANK SIDEWALKS—CONTINUED.

| No. of Warr't | Side of Street. | NAME OF STREET. | FROM | TO | AMOUNT. |
|------------------|--------------------|----------------------|---------------------------------|--------------------------------|-----------|
| 12085 | North | Seventy-second | Yates avenue | Jeffrey avenue | \$ 766 94 |
| 12086 | West | Railroad avenue | Seventy-first | Seventy-fifth | 880 84 |
| 12088 | Both | Graham avenue | Lawrence avenue | Ferry | 849 18 |
| 12089 | Both | Paxton avenue | Seventy-third | Seventy-fifth | 760 32 |
| 12090 | North | Barry avenue | Halsted | Evanston avenue | 293 80 |
| 12092 | East | Cottage Grove avenue | On part lots 10 and 11, block 6 | Drexel and Smith's subdivision | 44 00 |
| 12098 | Both | St. Louis avenue | West Madison | Colorado avenue | 647 08 |
| 12101 | Both | North Troy | Central Park avenue | 310 feet south | 251 43 |
| 12102 | Both | West Fifteenth | Morgan | Centre avenue | 234 58 |
| 12108 | South | Courtland | Howard avenue | Columbia avenue | 152 48 |
| 12108 | Both | Ogden avenue | Rockwell | California avenue | 796 73 |
| 12155 | Both | Wallace | Thirty-first | Egan avenue | 951 96 |
| 12231 | Both | Turner avenue | Fifty-seventh | Fifty-ninth | 768 45 |
| 12232 | Both | Fifty-ninth | Eberhart avenue | Turner avenue | 661 95 |
| 12233 | Both | West Twenty-third | Central Park avenue | Lawndale avenue | 99 84 |
| 12235 | Both | Taylor | State | Wentworth avenue | 135 95 |
| 12236 | Both | Vincennes avenue | State | Pacific avenue | 593 72 |
| 12265 | West | Lawndale | Forty-third | Forty-fourth | 213 94 |
| 12269 | Both | Morgan | West Twenty-eighth | West branch Chicago river | 740 66 |
| 12271 | Both | Pacific avenue | Wright | C. B. & Q. R. R. | 850 79 |
| 12273 | Both | Clybourn avenue | Van Buren | Harrison | 519 90 |
| 12274 | Both | Illinois | Larabee | Fullerton avenue | 4,848 30 |
| 12276 | Both | Nineteenth | Market | Kingsbury | 448 84 |
| 12280 | Both | South Dearborn | State | Clark | 576 54 |
| 12281 | Both | Elizabeth court | Thirty-eighth | Egan avenue | 70 00 |
| 12805 | Both | Grand avenue | Wallace | C. R. I. & P. Ry | 187 60 |
| 12806 | Both | Emerald avenue | Western avenue | California avenue | 2,716 48 |
| 12807 | Both | Thirty-fifth court | Thirty-third | Egan avenue | 287 35 |
| 12808 | Both | Champion avenue | Oakley avenue | Western | 232 12 |
| 12809 | Both | Eighty-seventh | Seventy-second | Seventy-fourth | 287 00 |
| 12810 | West | Halsted | Halsted | Vincennes avenue | 124 40 |
| 12837 | Both | Harrison | Eighty-seventh | Eighty-eighth | 177 72 |
| 12838 | Both | Fuller | Rockwell | California avenue | 289 92 |
| 12839 | Both | Huron | Archer avenue | Cologne | 1,243 75 |
| 12840 | Both | Hickory | Franklin | Kingsbury | 597 65 |
| | | | Lock | Main | 1,005 66 |

| | | | | | |
|------------|------|----------------------|------------------------|------------------------|--------------|
| 12841 | Both | Keeley..... | Archer avenue..... | Thirty-first..... | 265 50 |
| 12843 | Both | Ohio..... | Market..... | Kingsbury..... | 515 57 |
| 12843 | Both | Superior..... | Franklin..... | Market..... | 240 00 |
| 12844 | Both | Thirty-fourth..... | Halsted..... | Laurel..... | 779 95 |
| 12845 | Both | Shields avenue..... | Twenty-sixth..... | Thirty-first..... | 528 50 |
| 12846 | Both | Wabansia avenue..... | Robey..... | Coventry..... | 691 04 |
| 12847 | Both | Lawndale avenue..... | Sixteenth..... | Douglas boulevard..... | 588 86 |
| 12848 | Both | Olive..... | West Taylor..... | West Twelfth..... | 108 00 |
| 12849 | Both | Bonfield..... | Archer avenue..... | Thirty-first..... | 1,298 12 |
| 12850 | Both | Butterfield..... | Thirty-seventh..... | Thirty-ninth..... | 179 86 |
| 12851 | Both | Farrell..... | Archer avenue..... | Hickory..... | 457 90 |
| 12852 | Both | Homan avenue..... | West Twenty-third..... | West Twenty-fifth..... | 785 80 |
| TOTAL..... | | | | | \$238,956 06 |

STATEMENT OF ASSESSMENTS FOR ERECTING GAS LAMP POSTS.

| No. of Warrant | No. of Posts. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|------------------|--------------------------|---------------------------|---------------------------------|----------|
| 10646 | 8 | Rees..... | Halsted..... | Dayton..... | \$ 95 75 |
| 10647 | 15 | West Monroe..... | Kedzie avenue..... | Homan avenue..... | 453 75 |
| 10648 | 30 | Washtenaw avenue..... | West Division..... | North avenue..... | 877 50 |
| 10663 | 2 | Pearson..... | North Wells..... | Eastern terminus..... | 165 00 |
| 10667 | 4 | Forty-second..... | Ellis avenue..... | Drexel boulevard..... | 123 50 |
| 10668 | 4 | Deering..... | Cologne..... | South branch Chicago river..... | 123 50 |
| 10669 | 2 | Chicago avenue..... | 600 ft. E. of Pine..... | To its eastern terminus..... | 65 50 |
| 10670 | 5 | Kenwood court..... | Forty-eighth..... | Forty-ninth..... | 151 35 |
| 10671 | 4 | Calumet avenue..... | Thirty-seventh..... | 300 feet north..... | 123 50 |
| 10677 | 13 | Oakenwald avenue..... | Forty-fifth..... | Lake avenue..... | 393 25 |
| 10682 | 16 | Homan avenue..... | Ogden avenue..... | C, B. & Q. R. R..... | 484 00 |
| 10683 | 6 | Whipple..... | Colorado avenue..... | West Jackson..... | 181 50 |
| 10685 | 5 | McReynolds..... | Ashland avenue..... | Paulina..... | 151 25 |
| 10686 | 8 | Wabansia avenue..... | Ashland avenue..... | C. & N.-W. Ry..... | 242 00 |
| 10687 | 12 | West Clybourn place..... | Commercial..... | Robey..... | 363 00 |
| 10986 | 28 | Oakley avenue..... | West Division..... | North avenue..... | 819 00 |
| 11024 | 2 | Lytle..... | West Harrison..... | Vernon Park place..... | 65 50 |
| 11029 | 21 | Wolftram..... | Halsted..... | Racine avenue..... | 655 50 |
| 11030 | 21 | Thirty-second..... | Laurel..... | Benson..... | 630 25 |
| 11038 | 5 | Forty-first..... | Cottage Grove avenue..... | Champlain..... | 151 25 |

STATEMENT OF ASSESSMENTS FOR ERECTING GAS LAMP POSTS—CONTINUED.

| No. of Warrant | No. of Posts. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|------------------|---------------------------|---------------------|------------------------|-----------|
| 11708 | 7 | Rice | Wood | Lincoln | \$ 311 75 |
| 11779 | 10 | West Superior | Robey | Leavitt | 802 50 |
| 11780 | 11 | Clybourn avenue | Racine avenue | Herndon avenue | 332 75 |
| 11781 | 85 | Ashland avenue | Lincoln avenue | Sulzer | 2,496 25 |
| 11786 | 7 | West Twenty-second | Trumbull avenue | Central Park avenue | 211 75 |
| 11831 | 16 | West Division | Clybourn avenue | Sacramento | 494 00 |
| 11839 | 2 | North Lincoln | West Huron | West Erie | 65 50 |
| 11830 | 2 | Francisco | Wilcox | West Adams | 65 50 |
| 11831 | 47 | West Lake | Crawford avenue | Homan avenue | 1,374 75 |
| 11832 | 15 | Wabansia avenue | Ashland avenue | Robey | 453 75 |
| 11833 | 4 | Whipple | Jackson | West Van Buren | 123 50 |
| 11834 | 12 | Central Park avenue | Kinzie | Lake | 368 00 |
| 11835 | 7 | Chatham court | Division | Hobbie | 211 75 |
| 11836 | 13 | Milwaukee avenue | Fullerton avenue | California avenue | 393 25 |
| 11837 | 32 | Central Park avenue | Ogden avenue | Douglas Park boulevard | 986 00 |
| 11838 | 29 | Western avenue | Fullerton avenue | Armitage avenue | 848 25 |
| 11839 | 5 | Racine avenue | Garfield | Center | 151 25 |
| 11926 | 7 | Lake Park avenue | Twenty-ninth | Thirtieth | 311 75 |
| 11931 | 11 | Butler | Thirty-seventh | Egan | 392 27 |
| 11938 | 16 | Forty-fifth | Grand boulevard | Berkley | 484 00 |
| 11939 | 5 | Selden | Wood | Lincoln | 151 25 |
| 11940 | 9 | Greenwich | Robey | Leavitt | 272 25 |
| 11941 | 10 | Courtland | Robey | Leavitt | 302 50 |
| 11944 | 10 | Seminary avenue | Dunning | Diversity | 302 50 |
| 11945 | 11 | Shields avenue | Thirty-first | Thirty-third | 332 75 |
| 11946 | 3 | Ashland avenue | Clybourn avenue | Fullerton avenue | 65 50 |
| 11947 | 15 | Bonfield | Archer avenue | Thirty-first | 453 75 |
| 11948 | 14 | Fuller | Deering | Cologne | 423 50 |
| 11949 | 14 | Noble avenue | Sheffield avenue | Halsted | 332 75 |
| 12036 | 3 | Elm | Larrabee | Chatham court | 95 75 |
| 12037 | 7 | Blanche | Noble | Fleetwood | 211 75 |
| 12038 | 6 | Chapin | Noble | Currier | 181 50 |
| 12039 | 5 | McHenry | Blanche | North avenue | 151 25 |
| 12040 | 9 | Holt | West Chicago avenue | Augusta | 272 25 |
| 12041 | 28 | Oakley avenue | Milwaukee avenue | Hamburg | 980 75 |
| 12043 | 6 | Oakley avenue | North avenue | Northern terminus | 181 50 |

| | | | | |
|-------|--------------------|--------------------|-----------------------------------|----------|
| 11600 | California avenue | West Division | West Chicago avenue | 819 00 |
| 11601 | California avenue | West Twelfth | Ogden avenue | 831 75 |
| 11602 | California avenue | Ogden avenue | West Twenty-second | 1,170 00 |
| 11603 | California avenue | West Twenty-second | West Twenty-sixth | 819 00 |
| 11649 | Lock | Archer avenue | Thirty-first | 242 00 |
| 11650 | Twenty-third place | Wentworth avenue | Archer avenue | 514 25 |
| 11597 | West Twenty-second | California avenue | Trumbull avenue | 1,462 50 |
| 11598 | Armitage avenue | State | California avenue | 514 25 |
| 11599 | Twenty-seventh | La Salle | Portland avenue | 181 50 |
| 11600 | Emerald avenue | Archer avenue | Twenty-sixth | 242 00 |
| 11601 | Butterfield | Sixteenth | Twenty-second | 690 75 |
| 11602 | Twenty-third | Dearborn | La Salle | 211 75 |
| 11603 | Thirty-eighth | State | Wentworth avenue | 182 50 |
| 11604 | Iglehart place | Twenty-seventh | Southern terminus | 514 25 |
| 11605 | Keely | Archer avenue | Thirty-first | 706 00 |
| 11606 | Hickory | Main | Lock | 484 00 |
| 11608 | Hervey | Wood | Robey | 123 50 |
| 11609 | Mark | Union | Halsted | 95 75 |
| 11610 | Street | South of | Bickerdike square | 760 50 |
| 11611 | Belmont avenue | Racine avenue | Ashland avenue | 151 25 |
| 11612 | Concord place | Clybourn avenue | Sheffield avenue | 605 00 |
| 11613 | North avenue | Humboldt | Kedzie avenue | 1,491 75 |
| 11614 | Southport avenue | Fullerton avenue | Belmont avenue | 388 25 |
| 11615 | Albany avenue | West Lake | West Kinzie | 151 25 |
| 11618 | Thirty-fourth | Laurel | Auburn | 123 50 |
| 11619 | Wrightwood avenue | Orchard | Halsted | 484 00 |
| 11620 | West Twenty-first | Union | Armitage avenue | 123 50 |
| 11622 | Wilnot avenue | Leavitt | West Taylor | 272 25 |
| 11623 | Aberdeen | Damen | Washenaw avenue | 211 75 |
| 11624 | Flournoy | Rockwell | West Van Buren | 1,082 25 |
| 11653 | Francisco | West Monroe | Kedzie avenue | 1,321 00 |
| 11654 | West Congress | Washenaw avenue | West Division | 382 75 |
| 11655 | Western avenue | West Ohio | Wood | 151 25 |
| 11656 | Julian | Ashland avenue | Northern terminus | 211 75 |
| 11657 | Davis | North avenue | North line of Moody's subdivision | 789 75 |
| 11686 | Calumet avenue | Douglas avenue | Thirty-first | 191 50 |
| 11689 | Shields avenue | Twenty-sixth | Perry | 95 75 |
| 11690 | Belden avenue | Southport avenue | Stewart avenue | 65 50 |
| 11699 | Napoleon place | Portland avenue | Wabash avenue | 123 54 |
| 11700 | Thirty-sixth | State | Townsend | 484 00 |
| 11701 | Elm | Larabee | Ardmore avenue | |
| 11708 | Evanston avenue | Bryn Maur avenue | | |

STATEMENT OF ASSESSMENTS FOR ERECTING GAS LAMP POSTS—CONTINUED.

| No. of Warrant | No. of Posts. | NAME OF STREET. | | FROM | TO | AMOUNT. |
|-------------------|------------------|----------------------|----------------------|-------------------------|----|-----------|
| 11706 | 7 | Rice | Wood | Lincoln. | | \$ 211 75 |
| 11779 | 10 | West Superior | Robey. | Leavitt. | | 302 50 |
| 11780 | 11 | Clybourn avenue | Racine avenue. | Herndon avenue. | | 332 75 |
| 11781 | 85 | Ashland avenue. | Lincoln avenue. | Sulzer | | 2,486 25 |
| 11786 | 7 | West Twenty-second | Trumbull avenue. | Central Park avenue. | | 211 75 |
| 11821 | 16 | West Division | Clybourn avenue. | Sacramento | | 484 00 |
| 11829 | 2 | North Lincoln | West Huron | West Erie. | | 65 50 |
| 11830 | 2 | Frankisco | Wilcox | West Adams. | | 65 50 |
| 11831 | 47 | West Lake | Crawford avenue. | Homan avenue. | | 1,374 75 |
| 11832 | 15 | Wabansia avenue. | Ashland avenue. | Robey. | | 453 75 |
| 11833 | 4 | Whipple | Jackson. | West Van Buren. | | 128 50 |
| 11834 | 12 | Central Park avenue. | Kinzie. | Lake | | 868 00 |
| 11835 | 7 | Chatham court. | Division. | Hobbie. | | 211 75 |
| 11836 | 13 | Milwaukee avenue. | Fullerton avenue | California avenue. | | 393 25 |
| 11837 | 32 | Central Park avenue. | Ogden avenue. | Douglas Park boulevard. | | 986 00 |
| 11838 | 29 | Western avenue. | Fullerton avenue. | Armitage avenue | | 848 25 |
| 11839 | 5 | Racine avenue | Garfield | Center. | | 151 25 |
| 11836 | 7 | Lake Park avenue. | Twenty-ninth. | Thirtieth. | | 211 75 |
| 11931 | 11 | Butler | Thirty-seventh. | Egan. | | 332 27 |
| 11938 | 16 | Forty-fifth. | Grand boulevard | Berkley. | | 484 00 |
| 11939 | 5 | Selden | Wood. | Lincoln. | | 151 25 |
| 11940 | 9 | Greenwich | Robey. | Leavitt. | | 272 25 |
| 11941 | 10 | Courtland | Robey. | Leavitt. | | 302 50 |
| 11944 | 10 | Seminary avenue. | Dunning. | Diversy. | | 302 50 |
| 11945 | 11 | Shields avenue | Thirty-first. | Thirty-third. | | 332 75 |
| 11946 | 2 | Ashland avenue. | Clybourn avenue. | Fullerton avenue. | | 65 50 |
| 11947 | 15 | Bonfield | Archer avenue. | Thirty-first. | | 453 75 |
| 11948 | 14 | Fuller | Deering. | Cologne | | 438 50 |
| 11949 | 14 | Noble avenue. | Sheffield avenue. | Halsted | | 332 75 |
| 12036 | 8 | Elm | Larrabee | Chatham court | | 95 75 |
| 12037 | 7 | Blanche. | Noble | Fleetwood | | 211 75 |
| 12038 | 6 | Chapin. | Noble | Currier | | 181 50 |
| 12039 | 5 | McHenry | Blanche | North avenue | | 151 25 |
| 12040 | 9 | Holt. | West Chicago avenue. | Augusta | | 272 25 |
| 12041 | 28 | Oakley avenue. | Milwaukee avenue. | Hamburg | | 690 75 |
| 12042 | 6 | Oakley avenue. | North avenue. | Northern terminus. | | 181 50 |

| | | | | | |
|-------|----|-----------------------|-------------------|-------------------------------|----------|
| 12043 | 8 | Moorman | Paulina street. | Fowler | 95 75 |
| 12044 | 9 | Ashland. | Robey. | Olive. | 272 25 |
| 12045 | 8 | Lincoln | West Polk. | West Taylor. | 243 00 |
| 12046 | 18 | Morgan | West Eighteenth. | West Twenty-second. | 544 50 |
| 12047 | 5 | Yeston. | Wood. | Lincoln. | 151 25 |
| 12048 | 4 | Gold. | West Harrison. | Gurley. | 128 50 |
| 12049 | 2 | Hoyne avenue. | Washburne avenue. | West Thirtieth. | 65 50 |
| 12050 | 11 | Emily. | Ashland avenue. | Wood. | 333 75 |
| 12051 | 13 | Davis. | West Division. | Hirsch. | 398 25 |
| 12052 | 2 | Elk. | Bauwans. | Paulina. | 65 50 |
| 12053 | 8 | Carrier. | Augusta. | Chapin. | 243 00 |
| 12054 | 3 | Dean. | Paulina. | Brigham. | 95 75 |
| 12109 | 5 | Dearborn. | Fifty-fifth. | Fifty-sixth. | 151 25 |
| 12110 | 6 | Sherman | Sixty-third. | Sixty-fifth. | 181 50 |
| 12111 | 11 | Calumet avenue. | Forty-third. | Forty-fifth. | 333 75 |
| 12114 | 15 | Stony Island avenue. | Fifty-ninth. | Sixty-first. | 495 00 |
| 12115 | 13 | Indiana avenue. | Forty-fifth. | Forty-seventh. | 398 25 |
| 12116 | 43 | Cottage Grove avenue. | Forty-ninth. | Fifty-fifth. | 1,228 50 |
| 12117 | 16 | Forty-sixth. | Woodlawn avenue. | Cottage Grove avenue. | 484 00 |
| 12118 | 21 | Fifty-fifth. | Lexington avenue. | Cottage Grove avenue. | 680 25 |
| 12119 | 19 | Langley avenue. | Forty-sixth. | Forty-ninth. | 574 75 |
| 12120 | 13 | Nelly avenue. | Wentworth avenue. | State. | 398 25 |
| 12127 | 11 | Nellie avenue. | Evanston avenue. | Is eastern terminus. | 332 75 |
| 12148 | 5 | Portland avenue. | Douglas avenue. | Thirty-sixth street produced. | 151 25 |
| 12149 | 28 | California avenue. | West Division. | North avenue. | 819 00 |
| 12150 | 12 | Fairfield avenue. | West Lake. | Railroad grounds. | 963 00 |
| 12151 | 4 | West Twenty-second. | Lawndale avenue. | Bonney avenue. | 128 50 |
| 12156 | 7 | Fifty-sixth. | Cornell avenue. | East End avenue. | 108 10 |
| 12167 | 42 | South Canal. | Twenty-sixth. | Thirty-third. | 1,228 50 |
| 12168 | 1 | Early avenue. | Charlton. | Evanston avenue. | 85 25 |
| 12169 | 19 | Paulina | Wabansia avenue. | Armitage avenue. | 574 75 |
| 12170 | 7 | Jane | Robey. | Hoyne. | 211 75 |
| 12171 | 7 | Rice | Hoyne | Leavitt. | 211 75 |
| 12172 | 7 | Jane | Washenaw avenue. | California avenue. | 211 75 |
| 12173 | 11 | Maplewood avenue. | West Lake. | Railroad grounds. | 332 75 |
| 12174 | 23 | West Sixteenth. | Halsted. | Throop. | 680 75 |
| 12175 | 9 | Thomas | Campbell avenue. | California avenue. | 493 25 |
| 12177 | 5 | Francisco | West Lake. | Fulton. | 151 25 |
| 12178 | 30 | West Fifteenth. | Western avenue. | California avenue. | 877 50 |
| 12179 | 19 | Colorado avenue. | West Jackson. | Central Park avenue. | 574 75 |
| 12180 | 5 | Troy | Colorado avenue. | West Jackson. | 151 25 |
| 12181 | 58 | Courtland | Western avenue. | Kedzie avenue. | 1,686 50 |

STATEMENT OF ASSESSMENTS FOR ERECTING BOULEVARD LAMP POSTS—CONTINUED.

| No. of Warr'nt. | No. of Posts. | NAME OF STREET. | FROM | TO | AMOUNT. |
|--------------------|------------------|------------------------|-----------------------|---------------------------|-------------|
| 11976 | 106 | West Twelfth..... | Ashland avenue..... | Ogden avenue..... | \$ 1,878 00 |
| 12055 | 6 | Brompton avenue..... | Halsted..... | Evanston avenue..... | 198 00 |
| 12112 | 13 | Seventy-sixth..... | Goldsmith avenue..... | Vincennes avenue..... | 429 00 |
| 12113 | 5 | Sixty-third..... | Sherman..... | Winter..... | 165 00 |
| 12212 | 13 | Evans avenue..... | Forty-seventh..... | Forty-ninth..... | 429 00 |
| 12226 | 16 | Walnut..... | Homan avenue..... | Central Park avenue..... | 528 00 |
| 12320 | 11 | Oakwood boulevard..... | Vincennes avenue..... | Cottage Grove avenue..... | 489 00 |
| 12329 | 16 | Evanston avenue..... | Bryn Maur..... | Ardmore avenue..... | 224 00 |
| | 534 | TOTAL..... | | | \$14,509 50 |

STATEMENT OF ASSESSMENTS FOR ERECTING GASOLINE LAMP POSTS.

| No. of Warr'nt. | No. of Posts. | NAME OF STREET. | FROM | TO | AMOUNT. |
|--------------------|------------------|-------------------------|-----------------------------|------------------------------|-----------|
| 10494 | 51 | Lawndale avenue..... | West Chicago avenue..... | North avenue..... | \$ 698 50 |
| 10495 | 21 | Albany avenue..... | West Polk..... | West Twelfth..... | 804 50 |
| 10510 | 21 | Crawford avenue..... | West Indiana..... | West Chicago avenue..... | 804 50 |
| 10511 | 34 | Sacramento avenue..... | West Van Buren..... | West Twelfth..... | 467 50 |
| 10512 | 28 | West Taylor..... | California avenue..... | Kedzie avenue..... | 333 50 |
| 10622 | 19 | Roscoe..... | Lincoln avenue..... | Robey..... | 280 25 |
| 10651 | 11 | West Seventeenth..... | Loomis..... | Ashland avenue..... | 165 00 |
| 10664 | 11 | William avenue..... | Central Park avenue..... | Hamlin avenue..... | 165 00 |
| 10665 | 12 | Shakespeare avenue..... | California avenue..... | Humboldt Park boulevard..... | 180 00 |
| 10666 | 20 | Kedzie avenue..... | Central Park boulevard..... | West Chicago avenue..... | 295 00 |
| 10672 | 27 | West Twenty-sixth..... | Rockwell..... | Sacramento avenue..... | 384 75 |
| 10684 | 20 | West Sixteenth..... | Johnson..... | Throop..... | 295 00 |
| 10739 | 5 | Nutt avenue..... | Seventy-first..... | Seventy-second place..... | 80 00 |
| 10740 | 12 | Paulina..... | Clybourn avenue..... | Wrightwood avenue..... | 180 00 |
| 10741 | 4 | Melrose..... | Lincoln avenue..... | Robey..... | 848 00 |
| 10743 | 16 | West Huron..... | Oakley avenue..... | Seymour..... | 325 00 |
| 10743 | 12 | Maplewood avenue..... | Hirsch..... | North avenue..... | 180 00 |
| 11035 | 26 | School..... | Racine avenue..... | Ashland avenue..... | 870 50 |

| | | | | |
|-------|-----------------------|-------------------------|--------------------------|------------|
| 11026 | George..... | Sheffield avenue. | Racine avenue..... | 165 00 |
| 11027 | Melrose..... | Racine avenue..... | Ashland avenue..... | 356 25 |
| 11028 | Grand avenue..... | Western avenue..... | West Chicago avenue..... | 588 25 |
| 11081 | Otto..... | Racine avenue..... | Ashland avenue..... | 356 25 |
| 11027 | West Huron..... | Seymour..... | Washenaw avenue..... | 225 00 |
| 11028 | West Division..... | Kedzie avenue..... | Tinkham avenue..... | 420 00 |
| 11029 | Fairfield avenue..... | Thompson..... | Hirsch..... | 98 00 |
| 11030 | Bryn Maur avenue..... | North Clark..... | Evanston avenue..... | 304 50 |
| 11032 | Lumber..... | West Twenty-second..... | Union place..... | 189 50 |
| 11033 | Leavitt..... | Archer avenue..... | Thirty-seventh..... | 108 50 |
| 11034 | Bloom..... | Thirty-sixth..... | Thirty-eighth..... | 180 00 |
| 11035 | Curtis..... | West Huron..... | May..... | 98 00 |
| 11036 | Carpenter..... | Milwaukee avenue..... | C. & N.-W. Ry..... | 108 50 |
| 11037 | Arch..... | Archer avenue..... | Thirty-first..... | 160 00 |
| 11060 | Wall..... | Thirty-first..... | Springer avenue..... | 96 00 |
| 11062 | Logan..... | Hickory..... | Archer avenue..... | 108 50 |
| 11063 | Springer avenue..... | Laurel..... | Waterville avenue..... | 255 00 |
| 11064 | Tucker..... | Douglas avenue..... | Egan avenue..... | 333 50 |
| 11065 | Gage..... | Douglas avenue..... | Egan avenue..... | 333 50 |
| 12162 | Mantene court..... | Milwaukee avenue..... | Southern terminus..... | 64 00 |
| 12176 | Iowa court..... | Robey..... | Hoynes avenue..... | 96 00 |
| 12227 | Schick place..... | Clybourn avenue..... | Cleveland avenue..... | 51 00 |
| 12228 | Clayton..... | Johnston..... | Brown..... | 64 80 |
| 651 | TOTAL..... | | | \$9,891 05 |

TABLE NO. 1. STREET LAMPS FOR MAKING LAMP POST CONNECTIONS

| WATER VALVE | DATE OF ORDER | NAME OF STREET | FROM | TO | AMOUNT |
|-------------|---------------|----------------|------------|---------|----------|
| 11691 | 24 | Delaware | Indiana | Rock | \$390 00 |
| 11792 | 21 | Lyons | Clark | Evans | 357 00 |
| 12152 | 6 | Clark | Washington | Chicago | 102 00 |
| 12231 | 7 | Clark | Washington | May | 119 00 |
| | | | Fourth | | |
| | | | | | \$968 00 |

TABLE NO. 2. ASSESSMENTS FOR ERECTING LAMP POSTS

| WATER VALVE | DATE OF ORDER | NAME OF STREET | FROM | TO | AMOUNT |
|-------------|---------------|----------------|------|---------|----------|
| 11043 | 11 | South State | | Madison | \$151 00 |
| 11660 | 17 | Adams | | Belcher | 238 00 |
| | 28 | | | | \$389 00 |

STATEMENT OF ASSESSMENTS FOR STREET AND ALLEY OPENING AND WIDENING.

| No. of Warrant | IMPROVEMENT. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|------------------------|-----------------------|--------------------------|--------------------------------------|--------------|
| 10627 | Opening. | St. Lawrence avenue. | Forty-ninth | Fifty-first | \$25,383 97 |
| 10628 | Opening. | Alley | Robey to Hoyne avenue. | West Huron and West Superior. | 2,499 85 |
| 10629 | Opening. | Langley avenue. | Forty-fourth. | Forty fifth. | 5,214 60 |
| 11058 | Opening and Extending. | Everett. | Lincoln avenue. | Greenwood avenue. | 1,010 60 |
| 11115 | Opening. | St. Lawrence avenue. | Forty-sixth. | Forty-seventh. | 4,870 55 |
| 11491 | Opening and Widening. | Walnut. | Drake's subdivision. | Central Park avenue. | 6,490 74 |
| 11492 | Opening. | Alley | Wood street. | Lincoln. | 1,656 25 |
| 11493 | Opening. | Alley | Through lot 4, block 10. | Rockwell's addition. | 1,815 27 |
| 11495 | Opening. | Alley | Through lot 7, block 10. | Rockwell's addition. | 609 87 |
| 11496 | Opening. | Alley | N. W. 1/4, block 6. | Elston addition. | 977 89 |
| 11497 | Opening. | Fulton. | Homan avenue. | J. D. Parker's subdivision | 5,524 86 |
| 11771 | Opening. | Fake. | Northern terminus. | Bonaparte. | 1,952 66 |
| 11772 | Opening. | Hoyne avenue. | Across right of way of. | C. & N. W. Ry. | 878 21 |
| 11773 | Opening. | West Twelfth. | Albany avenue. | S. W. Boulevard. | 4,821 17 |
| 11774 | Opening. | Garden avenue. | Homan avenue. | East line J. B. Parker's subdivision | 3,434 86 |
| 11775 | Opening. | West Division. | California avenue. | Morrison avenue. | 376 48 |
| 11776 | Opening. | Albany avenue. | Homan avenue. | Central Park avenue. | 3,028 80 |
| 11777 | Opening. | Asylum place. | Twenty-third. | Twenty-fourth. | 1,154 98 |
| 11778 | Opening. | Forrestville avenue. | Across. | C. & N. W. Ry. | 310 00 |
| 11924 | Opening. | Alley | Forty-ninth | Fifty-first | 28,858 00 |
| 11961 | Opening. | Alley | In lots 87, 88, 89. | Ellis East addition. | 2,081 23 |
| 12084 | Opening. | Hoffman avenue. | Green and Peoria. | Sixty-first to Sixty-second. | 865 50 |
| 12085 | Opening. | Alley | Diversity avenue. | Belmont avenue. | 6,509 90 |
| 123174 | Opening. | Forrestville avenue. | Thirty-seventh | 97 feet north of Egan avenue. | 5,875 08 |
| 12336 | Widening. | Cottage Grove avenue. | Forty-first. | Forty-second. | 10,150 99 |
| 12366 | Widening. | Kemper place. | Forty-third. | South Chicago avenue. | 81,201 50 |
| 12367 | Straightening. | Tracy avenue. | Larabee. | Orchard. | 2,000 00 |
| 12368 | Opening. | Hampden court. | Through block 3. | Margaret Johnston's subdivision. | 1,844 91 |
| 12370 | Opening. | Alley | Southern terminus. | Jackson & Weages' subdivision. | 2,041 71 |
| | | | Winter and Wallace. | Deming court. | 12,041 87 |
| | | | | Dexter avenue and Forty-seventh | 1,098 23 |
| | | | TOTAL. | | \$109,969 01 |

STATEMENT OF ASSESSMENTS FOR LAYING STONE SIDEWALKS.

| No. of Warrant | Side of Street. | NAME OF STREET. | FROM | TO | AMOUNT. |
|-------------------|--------------------|---------------------------|--------------------------------|-------------------------------------|--------------|
| 10569 | Both | Lake..... | South branch of Chicago river. | Central avenue..... | \$ 7,814 84 |
| 10698 | Both | Forty-seventh..... | Drexel boulevard..... | Illinois Central R. R..... | 8,098 68 |
| 10699 | Both | Warren avenue..... | Ashland boulevard..... | Western avenue..... | 16,988 84 |
| 10643 | Both | Champlain avenue..... | Forty fifth..... | Forty-sixth..... | 2,924 05 |
| 10720 | Both | Warren avenue..... | California avenue..... | Homan avenue..... | 16,947 07 |
| 10805 | South | Forty-third..... | Rhodes avenue..... | Lake Park avenue..... | 2,389 70 |
| 10918 | Both | Bowen avenue..... | Cottage Grove avenue..... | Grand boulevard..... | 10,965 10 |
| 10984 | Both | Winchester avenue..... | West Taylor..... | West Twelfth..... | 2,805 18 |
| 11010 | Both | St. Lawrence avenue..... | Forty-fourth..... | Forty-fifth..... | 8,073 40 |
| 11198 | Both | Washington avenue..... | Lake avenue..... | Fifty-ninth..... | 8,105 08 |
| 11142 | Both | North Clark..... | Chicago avenue..... | Chestnut..... | 8,454 24 |
| 11187 | South | Thirty-sixth..... | Cottage Grove avenue..... | Ellis avenue..... | 798 00 |
| 11311 | Both | Ellis avenue..... | Douglas avenue..... | Egan avenue..... | 1,434 54 |
| 11398 | North | Fortieth..... | Drexel boulevard..... | Alley east..... | 387 68 |
| 11401 | Both | Prairie avenue..... | Thirty-third..... | Thirty-eighth..... | 10,139 08 |
| 11644 | East | Lake Park avenue..... | Twenty-ninth..... | Thirty-first..... | 2,921 60 |
| 11661 | Both | Astor..... | Schiller..... | Burton place..... | 883 23 |
| 11675 | North | Thirty-sixth..... | Cottage Grove avenue..... | Vincennes avenue..... | 285 70 |
| 11676 | South | Thirty-seventh..... | Ellis avenue..... | Lake avenue..... | 100 19 |
| 11720 | Both | Lake avenue..... | Forty-seventh..... | Fiftieth..... | 8,018 41 |
| 11728 | Both | Champlain avenue..... | Forty-sixth..... | Forty-seventh..... | 1,774 27 |
| 11729 | Both | Cottage Grove avenue..... | University place..... | Forty-third..... | 789 00 |
| 11780 | Both | Forty-fifth..... | Cottage Grove avenue..... | Its eastern terminus..... | 776 16 |
| 11841 | Both | Grace..... | North Clark..... | 120 feet west of Lake Michigan..... | 9,986 44 |
| 11918 | Both | Byron..... | Sheffield avenue..... | Halsted..... | 4,140 83 |
| 11923 | Both | Forrestville avenue..... | Forty-third..... | Forty-fourth..... | 2,901 87 |
| 11975 | East | Stony Island avenue..... | Seventy-first..... | Seventy-third..... | 8,403 48 |
| 12067 | South | Fiftieth..... | Woodlawn avenue..... | Center of block west..... | 768 78 |
| 12273 | Both | Prairie avenue..... | Thirty-first..... | Thirty-third..... | 683 86 |
| TOTAL..... | | | | | \$181,708 68 |

SUMMARY.

Total Assessments for Wooden Block Pavement :

| | | |
|---------------------|---------------|----------------|
| North Division..... | \$ 678,651 75 | |
| South Division..... | 1,092,150 06 | |
| West Division..... | 2,127,856 21 | |
| | <hr/> | \$3,898,658 02 |

Total Assessments for Constructing Sewers :

| | | |
|---------------------|--------------|--------------|
| North Division..... | \$128,571 81 | |
| South Division..... | 840,868 82 | |
| West Division | 552,526 77 | |
| | <hr/> | 1,021,961 90 |

Total Assessments for Miscellaneous Street and
Alley Improvements :

| | | |
|----------------------|--------------|------------|
| North Division | \$123,689 66 | |
| South Division | 495,960 74 | |
| West Division | 69,189 75 | |
| | <hr/> | 688,840 15 |

Total Assessments for Laying Water Service Pipes :

| | | |
|---------------------|--------------|------------|
| North Division..... | \$ 76,771 60 | |
| South Division..... | 194,610 96 | |
| West Division..... | 219,816 80 | |
| | <hr/> | 490,698 86 |

Total Assessments for Laying Plank Sidewalks :

| | | |
|---------------------|--------------|------------|
| North Division..... | \$ 22,687 98 | |
| South Division..... | 111,887 98 | |
| West Division..... | 104,880 15 | |
| | <hr/> | 239,856 06 |

Total Assessments for Laying Private Drains :

| | | |
|---------------------|-------------|------------|
| North Division..... | \$48,818 00 | |
| South Division..... | 97,505 55 | |
| West Division..... | 92,261 06 | |
| | <hr/> | 238,584 61 |

Total Assessments for Street and Alley Opening
and Widening :

| | | |
|---------------------|--------------|------------|
| North Division..... | \$ 21,561 87 | |
| South Division..... | 115,438 91 | |
| West Division | 82,978 23 | |
| | <hr/> | 169,969 01 |

Total Assessments for Laying Stone Sidewalks:

| | | |
|---------------------|-------------|-------------|
| North Division..... | \$22,922 22 | |
| South Division..... | 7,900 37 | |
| West Division..... | 7,886 00 | |
| | <hr/> | \$31,708 69 |

Total Assessments for Erecting Gas Lamp Posts:

| | | |
|---------------------|-------------|-------------|
| North Division..... | \$13,704 79 | |
| South Division..... | 5,595 10 | |
| West Division..... | 4,317 75 | |
| | <hr/> | \$23,617 64 |

Total Assessments for Erecting Boulevard Lamp
Posts:

| | | |
|---------------------|------------|------------|
| North Division..... | \$3,052 00 | |
| South Division..... | 1,578 50 | |
| West Division..... | 4,879 00 | |
| | <hr/> | \$9,509 50 |

Total Assessments for Erecting Gasoline Lamp
Posts:

| | | |
|---------------------|------------|------------|
| North Division..... | \$2,411 75 | |
| South Division..... | 1,576 00 | |
| West Division..... | 5,808 00 | |
| | <hr/> | \$9,895 75 |

Total Assessments for Making Lamp Post Con-
nections:

| | | |
|---------------------|----------|------------|
| North Division..... | \$957 00 | |
| South Division..... | 119 00 | |
| West Division..... | 492 00 | |
| | <hr/> | \$1,568 00 |

Total Assessments for Erecting Bryant Lamps:

| | | |
|---------------------|----------|----------|
| North Division..... | \$392 00 | |
| South Division..... | ... | |
| West Division..... | ... | |
| | <hr/> | \$392 00 |

| | | | |
|------------|--|-------|----------------|
| TOTAL..... | | <hr/> | \$6,427,153 43 |
|------------|--|-------|----------------|

The following list shows the total of assessments made in each year since 1861 :

| | |
|---|-----------------|
| For the year ending April 1, 1862 | \$ 42,685 49 |
| For the year ending April 1, 1863 | 46,498 67 |
| For the year ending April 1, 1864 | 389,169 81 |
| For the year ending April 1, 1865 | 108,576 85 |
| For the year ending April 1, 1866 | 802,574 56 |
| For the year ending April 1, 1867..... | 317,206 18 |
| For the year ending April 1, 1868 | 1,354,436 48 |
| For the year ending April 1, 1869..... | 2,395,688 08 |
| For the year ending April 1, 1870 | 2,886,852 48 |
| For the year ending April 1, 1871..... | 2,359,835 89 |
| For the year ending April 1, 1872..... | 62,222 25 |
| For the year ending April 1, 1873..... | ..... |
| For the year ending April 1, 1874 | 749,460 27 |
| For the year ending April 1, 1875 | 728,254 42 |
| For the nine months ending January 1, 1876..... | 60,585 72 |
| For the year ending January 1, 1877..... | 1,516,081 07 |
| For the year ending January 1, 1878..... | 124,498 48 |
| For the year ending January 1, 1879..... | 284,900 45 |
| For the year ending January 1, 1880..... | 588,968 44 |
| For the year ending January 1, 1881..... | 980,895 50 |
| For the year ending January 1, 1882..... | 1,227,169 71 |
| For the year ending January 1, 1883..... | 1,395,372 98 |
| For the year ending January 1, 1884..... | 2,332,757 04 |
| For the year ending January 1, 1885..... | 2,857,905 28 |
| For the year ending January 1, 1886 | 2,889,544 80 |
| For the year ending January 1, 1887..... | 3,807,567 99 |
| For the year ending January 1, 1888..... | 3,160,474 67 |
| For the year ending January 1, 1889..... | 3,655,956 78 |
| For the year ending January 1, 1890..... | 4,220,869 98 |
| For the year ending January 1, 1891..... | 6,987,155 48 |
| Total for thirty years..... | \$47,694,099 70 |

Respectfully submitted,

H. J. JONES,
Superintendent Special Assessments.

Book-keeper's Statement

BOOK-KEEPER'S STATEMENT.

CHICAGO, December 31, 1890.

W. H. PURDY, Esq.,

Commissioner of Public Works.

DEAR SIR :—I herewith respectfully submit statement in detail of the Receipts and Expenditures of your Department for the year 1890.

From January 1st to April 30th separate accounts were kept with the various funds of the annexed territory, an abstract of which will be found at the end of this report :

WATER FUND.

RECEIPTS.

Acc't Current Rents.

| | | |
|--|----------------|----------------|
| Amount collected during the year for current water rents assessed..... | \$1,438,336 24 | |
| Credited to annexed territory | 34,065 66 | |
| | <hr/> | |
| Credited to water fund..... | | \$1,404,270 58 |
| Amount collected during the year for current water rents, meter measurement..... | \$ 671,160 10 | |
| Credited to annexed territory | 29,048 54 | |
| | <hr/> | |
| Credited to water fund..... | | 642,111 56 |

Acc't Water Service Cocks.

| | | |
|---|--------------|----------------|
| Amount received for taps and permits, also plumbers' licenses (\$422.50)..... | \$ 93,172 24 | |
| | <hr/> | |
| Carried forward, | \$ 93,172 24 | \$2,046,382 14 |

DEPARTMENT OF PUBLIC WORKS.

| | | | |
|---|--------------|----------------|---|
| Brought forward, | \$ 93,172 24 | \$2,046,382 14 | . |
| Amount received for sundries | 44 00 | | |
| | <hr/> | | |
| | \$ 93,216 24 | | |
| Credited to annexed territory | 5,280 40 | | |
| | <hr/> | | |
| Credited to water fund..... | | 87,935 84 | |
| <i>Acc't Meters and Private Work.</i> | | | |
| Amount received for labor and material used in laying and repairing water supply pipes for elevator and general supply of water, also for changing location of hydrants and stop-cocks. | \$ 59,722 34 | | |
| Amount received for meters, fittings and labor..... | 12,484 43 | | |
| Amount received for repairing meters..... | 5,286 57 | | |
| | <hr/> | | |
| | \$ 77,493 34 | | |
| Deduct amount received by transfer \$464 00 | | | |
| Credited to annexed territory..... | 1,771 70 | | |
| | <hr/> | | |
| | 2,235 70 | | |
| Credited to water fund..... | | 75,257 64 | |
| <i>Acc't North Pumping Works.</i> | | | |
| Amount received for scrap iron, brass borings, etc... | | 694 69 | |
| <i>Acc't West Pumping Works.</i> | | | |
| Amount received for scrap iron, empty barrels, etc... | | 89 62 | |
| <i>Acc't Central Pumping Works.</i> | | | |
| Amount of voucher deposited back | | 116 63 | |
| | | <hr/> | |
| Carried forward, | | \$2,210,476 56 | |

| | | | |
|--|----|----------------|----------------|
| Brought forward, | | \$2,210,476 56 | |
| <i>Acc't Sixty-eighth street Pumping Works.</i> | | | |
| Amount received for scrap iron | \$ | 112 56 | |
| Amount received for voucher deposited back | | 21 88 | |
| | | <hr/> | 134 44 |
| <i>Acc't Lake View Pumping Works.</i> | | | |
| Amount received for empty barrels | \$ | 64 20 | |
| Amount received for scrap iron | | 70 71 | |
| | | <hr/> | |
| | \$ | 134 91 | |
| Credited to annexed territory | | 50 94 | |
| | | <hr/> | |
| Credited to water fund | | | 88 97 |
| <i>Acc't Water Pipe and Special Castings.</i> | | | |
| Amount received for scrap iron | \$ | 3,067 48 | |
| Amount received for pipe and castings | | 8,063 61 | |
| | | <hr/> | 11,181 04 |
| <i>Acc't Hydrant Wrenches.</i> | | | |
| Amount received as deposits for loan of hydrant wrenches | | | 410 00 |
| <i>Acc't Water Works Shop.</i> | | | |
| Amount received for brass borings, lead dross and scrap iron | \$ | 993 97 | |
| Amount received for three hydrants | | 95 49 | |
| Amount received for machine work repairing steam roller | | 474 55 | |
| | | <hr/> | 1,564 01 |
| Carried forward, | | | \$2,223,800 02 |

Brought forward,

\$2,223,800 02

*Miscellaneous Receipts—**To Credit of Water Fund.*

| | |
|---|------------|
| Delinquent water rents..... | \$ 12 00 |
| Rent of Rookery lot..... | 35,000 04 |
| Interest on investment..... | 29,229 27 |
| Bonds sold..... | 439,780 00 |
| From private parties to lay water mains..... | 126,324 06 |
| For inspection..... | 661 88 |
| For rent of dock | 25 00 |
| For lumber..... | 417 79 |
| For pile driving..... | 384 00 |
| For constructing manhole... | 34 86 |
| For sundries..... | 70 41 |

631,939 31

Total receipts.....

\$2,855,739 33

EXPENDITURES.

Acc't Water Pipe Extension.

Paid for—

| | |
|---|--------------|
| Labor..... | \$375,919 11 |
| Teaming..... | 25,224 72 |
| Pipe and castings..... | 702,824 09 |
| Valve gates, valves, valve wells, etc..... | 21,962 85 |
| Hydrants, etc., from Water Works Shop..... | 58,212 86 |
| Hydrant and stop-cock chambers..... | 14,130 79 |
| Lumber..... | 7,761 99 |
| Brick..... | 7,956 90 |
| Lead..... | 43,782 48 |
| Cement, fire-brick and clay. | 3,493 25 |
| Blacksmithing..... | 1,122 17 |
| Plumbing..... | 2,647 02 |
| Paving..... | 19,125 72 |
| Gaskets and packing..... | 3,044 66 |
| Sand..... | 435 25 |
| Rope and chain..... | 424 29 |

Carried forward,

\$1,288,068 15

| | | |
|---|----------------|----------------|
| Brought forward, | \$1,288,068 15 | |
| Tools and repairing..... | 1,215 35 | |
| Nails and other hardware... | 1,160 83 | |
| Sewer work..... | 1,614 30 | |
| Pipe inspection..... | 3,990 01 | |
| Blasting and excavating | 2,232 10 | |
| Earth filling | 4,386 55 | |
| Coal..... | 429 89 | |
| Paint and oil..... | 205 42 | |
| Horse keep | 1,611 41 | |
| Real estate..... | 11,500 00 | |
| Torches and lamps | 141 59 | |
| Freight and switching | 948 35 | |
| Railroad and car fare | 318 37 | |
| Ice..... | 51 18 | |
| Removing dirt..... | 341 20 | |
| Gas..... | 52 88 | |
| Stone | 52 20 | |
| Veterinary services | 53 00 | |
| Brooms and pails..... | 38 33 | |
| Tinsmithing..... | 16 22 | |
| Harness and blankets | 19 55 | |
| Hoop poles..... | 26 25 | |
| Books, printing and station- ery | 281 48 | |
| Re-building fence | 10 50 | |
| Binding atlas | 23 50 | |
| Leather | 26 95 | |
| Repairing sidewalk | 9 00 | |
| Wood work..... | 26 47 | |
| Rent..... | 225 00 | |
| Sundries | 122 40 | |
| | <hr/> | |
| | \$1,319,198 43 | |
| Charged annexed territory .. | 22,365 69 | |
| | <hr/> | |
| Charged water fund..... | | \$1,296,832 74 |
| <i>Acc't Water Works Repairs.</i> | | |
| Paid for— | | |
| Labor..... | \$ 133,431 93 | |
| Water pipe and castings.... | 23,276 03 | |
| | <hr/> | |
| Carried forward, | \$ 156,707 96 | \$1,296,832 74 |

| | | |
|--|---------------|----------------|
| Brought forward, | \$ 156,707 96 | \$1,296,832 74 |
| Teaming | 8,368 72 | |
| Cement | 1,307 29 | |
| Lead | 1,291 82 | |
| Sewer pipe | 39 31 | |
| Brick | 1,456 60 | |
| Sand | 143 50 | |
| Paving..... | 1,728 43 | |
| Lumber | 782 40 | |
| Plumbing..... | 948 34 | |
| Machine work (shop)..... | 1,506 00 | |
| Horse keep..... | 573 28 | |
| Valve-wells | 490 00 | |
| Paint and oil | 51 35 | |
| Painting..... | 15 96 | |
| Tools and repairing..... | 38 75 | |
| Sundries | 4 50 | |
| Damages | 21 00 | |
| | <hr/> | |
| | \$ 175,475 21 | |
| Charged annexed territory.. | 15,306 74 | |
| | <hr/> | |
| Charged water fund | | 160,168 47 |
| <i>Acc't Meters and Private Work.</i> | | |
| Paid for— | | |
| Meters, counters, covers and fittings..... | \$ 44,496 80 | |
| Labor | 25,738 88 | |
| Rebates on deposits..... | 9,372 51 | |
| Water pipe and castings.... | 6,074 86 | |
| Sewer pipe | 10 64 | |
| Lead..... | 815 04 | |
| Brick | 554 00 | |
| Cement | 199 06 | |
| Sand | 34 75 | |
| Teaming..... | 214 65 | |
| Plumbing | 94 00 | |
| Blacksmithing..... | 197 30 | |
| Lumber..... | 817 64 | |
| Packing | 76 54 | |
| Hardware | 101 96 | |
| | <hr/> | |
| Carried forward, | \$ 88,798 63 | \$1,457,001 21 |

| | | |
|--|--------------|----------------|
| Brought forward, | \$ 88,798 63 | \$1,457,001 21 |
| Machine work (shop)..... | 3,163 97 | |
| Harness and repairing..... | 147 10 | |
| Candles and matches..... | 32 76 | |
| Tools | 13 80 | |
| Books, printing and station- ery..... | 73 35 | |
| Railroad and car fare..... | 18 41 | |
| Postage..... | 44 26 | |
| Sheet rubber..... | 32 25 | |
| Paving..... | 25 41 | |
| Traveling expenses..... | 41 00 | |
| Pumps..... | 12 75 | |
| Tar mops..... | 10 50 | |
| One horse..... | 125 00 | |
| Horse keep..... | 512 93 | |
| Sawdust..... | 20 00 | |
| Wagon and repairing..... | 130 10 | |
| Sundries..... | 32 82 | |
| | <hr/> | |
| | \$ 93,235 04 | |
| Charged annexed territory.. | 639 11 | |
| | <hr/> | |
| Charged to water fund..... | | 92,595 93 |

*Acc't North Pumping
Works.*

Paid for—

| | | |
|--|---------------|----------------|
| Salaries of engineers, fire- men, etc., and for labor.. | \$ 51,270 70 | |
| Coal..... | 85,314 58 | |
| Waste, gasket and packing.. | 769 58 | |
| Paint, oil and grease..... | 1,347 89 | |
| Steel, iron and tin..... | 20 68 | |
| Cement and lime..... | 54 20 | |
| Books, printing and station- ery..... | 27 43 | |
| Diving..... | 360 00 | |
| Lumber | 148 38 | |
| Metal polish..... | 77 40 | |
| Candles and soap..... | 86 95 | |
| Brooms and brushes..... | 32 30 | |
| | <hr/> | |
| Carried forward, | \$ 139,510 09 | \$1,549,597 14 |

| | | |
|-------------------------------|---------------|----------------|
| Brought forward, | \$ 139,510 09 | \$1,549,597 14 |
| Electric lamps and fittings.. | 307 71 | |
| Hose..... | 17 88 | |
| Sewerage..... | 250 00 | |
| Pipe and fittings..... | 68 44 | |
| Plumbing..... | 144 82 | |
| Repairing machinery..... | 933 77 | |
| Rubber goods..... | 9 11 | |
| Valves, etc..... | 254 64 | |
| Castings..... | 94 22 | |
| Brasswork..... | 15 60 | |
| Hardware..... | 60 08 | |
| Testing engines..... | 661 00 | |
| Pile driving and dredging,.. | 643 00 | |
| Trees..... | 127 90 | |
| Paving..... | 108 50 | |
| Test gauge..... | 38 25 | |
| Leather belting..... | 28 84 | |
| One clock..... | 3 00 | |
| Roofing..... | 60 00 | |
| Machine work..... | 796 78 | |
| Horse keep..... | 515 81 | |
| Sheet rubber..... | 33 50 | |
| Sprinkling..... | 450 00 | |
| Oatmeal..... | 12 00 | |
| Locomotive axle..... | 12 44 | |
| Special assessment..... | 2,025 19 | |
| Fire brick and clay..... | 18 00 | |
| Ice..... | 144 31 | |
| Gas..... | 419 60 | |
| Tallow and wicks..... | 21 70 | |
| City directory..... | 6 00 | |
| Tools..... | 11 25 | |
| Hemp..... | 64 80 | |
| Glass..... | 60 11 | |
| Flags..... | 43 10 | |
| Hydrant test pump..... | 61 50 | |
| Advertising..... | 4 00 | |
| Sundries..... | 11 92 | |
| | <hr/> | 148,048 86 |

Carried forward,

\$1,697,646 00

Brought forward, \$1,697,646 00

Acc't West Pumping Works.

Paid for—

| | | |
|---|--------------|--|
| Salaries of engineers, firemen, etc., and for labor.. | \$ 43,587 62 | |
| Coal..... | 47,681 39 | |
| Machine work and blacksmithing..... | 4,178 13 | |
| Valves, etc..... | 845 72 | |
| Castings..... | 144 35 | |
| Fire-brick and clay..... | 309 35 | |
| Pipe and fittings..... | 78 66 | |
| Hardware..... | 242 44 | |
| Oil and grease..... | 1,819 73 | |
| Terra cotta..... | 121 99 | |
| Ground brick, cement and lime..... | 63 15 | |
| Waste, packing and gaskets. | 1,129 68 | |
| Metal polish..... | 70 00 | |
| Brooms and brushes..... | 51 82 | |
| Soap, etc..... | 39 49 | |
| Reflectors..... | 21 00 | |
| Scoops..... | 13 64 | |
| Leather..... | 19 14 | |
| Lathe and tools..... | 273 53 | |
| Brass and copper work..... | 22 87 | |
| Rubber goods..... | 179 40 | |
| Car fare..... | 10 60 | |
| Repairing lubricators..... | 42 90 | |
| Ropes, etc..... | 26 38 | |
| Thermometers..... | 8 00 | |
| Lumber..... | 12 68 | |
| Furniture..... | 21 60 | |
| Ice..... | 64 20 | |
| Advertising..... | 6 00 | |
| Bath tub..... | 14 00 | |
| Diving..... | 40 00 | |
| City Directory..... | 6 00 | |
| Sand..... | 4 00 | |
| Salt..... | 5 00 | |
| Oatmeal..... | 14 00 | |

Carried forward, \$ 101,168 46 \$1,697,646 00

| | | |
|-------------------------|---------------|----------------|
| Brought forward, | \$ 101,168 46 | \$1,697,646 00 |
| Wheelbarrows..... | 11 05 | |
| Pipe covering..... | 29 70 | |
| Glass... .. | 8 00 | |
| Coke. | 26 00 | |
| Revolving counters..... | 47 00 | |
| Sundries..... | 32 51 | |
| | <hr/> | 101,322 72 |

*Account Central Pumping
Works.*

A—Construction.

| | | |
|--|--------------|----------------|
| Paid for— | | |
| Labor..... | \$ 14,082 50 | |
| Engines and boilers (on ac- count)..... | 48,536 09 | |
| Cement and fire-brick..... | 975 35 | |
| Iron floor..... | 1,286 00 | |
| Granite floor..... | 326 25 | |
| Hardwood floor..... | 1,225 00 | |
| Brickwork and masonry.... | 1,698 16 | |
| Gallery | 3,954 40 | |
| Cut stone work..... | 826 82 | |
| Lightning-rods..... | 295 50 | |
| Pipe and fittings..... | 2,791 91 | |
| Plumbing..... | 540 76 | |
| Electrical connections | 744 43 | |
| Water pipe | 1,141 41 | |
| Brass railing..... | 230 00 | |
| Raising platform | 100 00 | |
| Fire doors..... | 59 34 | |
| Coal and coke | 322 74 | |
| Iron ladder | 143 58 | |
| Scale | 245 00 | |
| Paint and oil..... | 307 18 | |
| Castings | 2,327 95 | |
| Painting..... | 1,653 00 | |
| Cement sidewalk | 605 00 | |
| Iron roof..... | 750 00 | |
| Inspecting machinery | 450 00 | |
| Brick | 870 00 | |
| | <hr/> | |
| Carried forward, | \$ 86,488 37 | \$1,798,968 72 |

| | | | |
|------------------------------|----|-----------|----------------|
| Brought forward, | \$ | 86,488 37 | \$1,798,968 72 |
| Plastering | | 137 50 | |
| Gas-fitting and connections. | | 609 79 | |
| Iron work | | 766 12 | |
| Coppersmithing..... | | 63 83 | |
| Bearing-plates | | 121 48 | |
| Lumber | | 499 84 | |
| Radiators and fittings | | 659 23 | |
| Hardware | | 172 75 | |
| Water gates..... | | 1,651 50 | |
| Furniture..... | | 71 45 | |
| Advertising..... | | 45 25 | |
| Glass | | 167 70 | |
| Sewerage..... | | 85 37 | |
| Window guards | | 36 00 | |
| Stone and granite | | 363 52 | |
| Sand | | 31 50 | |
| Tools..... | | 78 55 | |
| Tin work..... | | 113 68 | |
| Teaming | | 123 00 | |
| Gaskets, packing and waste. | | 430 35 | |
| Boiler tiles | | 120 00 | |
| Fire-brick and clay..... | | 263 70 | |
| Sundries | | 190 61 | |
| | | | 93,291 09 |

B—Operating and Maintaining.

| | | |
|--|----|-----------|
| Paid for— | | |
| Coal..... | \$ | 5,189 54 |
| Salaries of engineers, firemen, etc..... | | 16,330 94 |
| Oil and grease..... | | 884 22 |
| Gas..... | | 285 40 |
| Castings..... | | 84 62 |
| Gaskets and packing..... | | 33 73 |
| Waste | | 194 25 |
| Machine work..... | | 286 71 |
| Valves, pipes and fittings... | | 59 54 |
| Pails, brooms and sponges.. | | 50 98 |
| Hardware.. . | | 29 67 |
| Polish..... | | 23 25 |
| Paint and brushes..... | | 46 73 |

| | | | |
|------------------|----|-----------|----------------|
| Carried forward, | \$ | 23,499 58 | \$1,892,259 81 |
|------------------|----|-----------|----------------|

| | | | |
|---------------------------|----|-----------|----------------|
| Brought forward, | \$ | 23,499 58 | \$1,892,259 81 |
| Hose and couplings..... | | 104 15 | |
| Tools and repairing..... | | 159 54 | |
| Globes..... | | 8 20 | |
| Felt..... | | 16 50 | |
| Plumbing..... | | 4 50 | |
| Wire cable..... | | 30 00 | |
| Ice | | 52 30 | |
| Sand..... | | 43 50 | |
| Saw dust..... | | 3 00 | |
| Lime..... | | 20 80 | |
| Brick..... | | 25 50 | |
| Clay..... | | 9 00 | |
| Lumber | | 40 43 | |
| Clocks | | 13 50 | |
| Car fare..... | | 6 20 | |
| Boiler compound..... | | 26 25 | |
| Soap..... | | 16 99 | |
| Machinist supplies..... | | 19 70 | |
| Stationery and books..... | | 33 90 | |
| Sundries..... | | 28 10 | |
| | | | 24,161 64 |

*Acc't Sixty-Eighth Street
Pumping Works.*

| | | | |
|--|----|-----------|----------------|
| Paid for— | | | |
| Salaries of engineers, firemen and labor..... | \$ | 36,296 62 | |
| Coal..... | | 29,794 01 | .. |
| Castings..... | | 1,277 03 | |
| Watergate and basin..... | | 3,347 50 | |
| Waste and packing..... | | 1,898 48 | |
| Oil and grease..... | | 880 87 | |
| Pipe and fittings..... | | 151 26 | |
| Electrical supplies..... | | 811 97 | |
| Excavating and brick work. | | 1,465 50 | |
| Lathing and plastering | | 39 15 | |
| Masonry | | 53 10 | |
| Staircase | | 266 20 | |
| Sewerage. | | 158 00 | |
| Door-sills | | 61 52 | |
| Painting and glazing..... | | 521 28 | |
| Carried forward, | \$ | 77,022 49 | \$1,916,421 45 |

| | | |
|---|--------------|----------------|
| Brought forward, | \$ 77,022 49 | \$1,916,421 45 |
| Architect services | 352 75 | |
| Valves and fittings..... | 1,742 83 | |
| Valve plates | 736 95 | |
| Iron and machine work | 1,146 21 | |
| Teaming | 180 78 | |
| Lumber..... | 287 96 | |
| Repairing machinery..... | 1,013 42 | |
| Fire-brick and clay..... | 119 00 | |
| Grates | 680 00 | |
| Traveling expenses..... | 60 00 | |
| Furniture..... | 281 89 | |
| Carpenter work | 362 49 | |
| Metal polish | 88 62 | |
| Pipe inspection | 65 40 | |
| Plumbing..... | 150 00 | |
| Iron and hardware | 109 71 | |
| Ice | 123 90 | |
| Cement and lime..... | 49 80 | |
| Brooms, pails and soap.... | 62 58 | |
| Hose | 29 58 | |
| Tools | 14 02 | |
| Drip pans | 32 00 | |
| Wheelbarrows | 47 38 | |
| Splicing rod | 120 00 | |
| Meals..... | 153 40 | |
| Horse keep and shoeing.... | 70 32 | |
| Air-pump | 36 35 | |
| Seeds | 16 96 | |
| Boiler compound..... | 102 50 | |
| Postage, printing and station- ery | 4 98 | |
| Test gauge..... | 40 00 | |
| Paving | 61 00 | |
| Gauge glasses..... | 6 75 | |
| Rubber goods..... | 49 93 | |
| Sundries | 98 28 | |
| | <hr/> | |
| | \$ 85,520 23 | |
| Charged annexed territory.. | 22,618 12 | |
| | <hr/> | |
| Charged water fund..... | | 62,902 11 |
| | | <hr/> |
| Carried forward, | | \$1,979,323 56 |

Brought forward,

\$1,979,323 56

Acc't Lake View Pumping Works.

Paid for—

| | | |
|--|----|-----------|
| Salaries of engineers, firemen and labor | \$ | 9,808 54 |
| Oil, waste and packing..... | | 1,435 23 |
| Coal..... | | 10,737 66 |
| Iron and machine work.... | | 1,491 49 |
| Transferring water pipe.... | | 7,043 60 |
| Valves and fittings..... | | 245 76 |
| Sewer, wood, and iron pipe. | | 704 78 |
| Water works shop..... | | 411 32 |
| Castings..... | | 48 35 |
| Diving | | 240 00 |
| Tug service..... | | 110 00 |
| Paving | | 283 50 |
| Metal Polish | | 21 25 |
| Building platform | | 150 00 |
| Express charges..... | | 3 41 |
| Hose and couplings..... | | 13 90 |
| Rope and blocks | | 5 80 |
| Tools | | 11 58 |
| Special assessments..... | | 11 10 |
| Rubber boots | | 7 40 |
| Hydrant washers | | 10 00 |
| Stationery | | 4 39 |
| Sundries..... | | 22 54 |

 \$ 32,821 60

Charged annexed territory.. 5,636 68

 Charged water fund..... 27,134 92
Acc't Washington Heights Pumping Works.

Paid for—

| | | |
|-------------------------|----|--------|
| Salary of engineer..... | \$ | 128 50 |
| Coal..... | | 61 43 |
| Brass tubes..... | | 56 00 |
| Manure | | 10 50 |

 Carried forward, \$ 256 43 \$2,006,458 48

| | | | |
|------------------------|----|--------|----------------|
| Brought forward, | \$ | 256 43 | \$2,006,458 48 |
| Packing | | 2 50 | |
| Castings | | 24 40 | |
| Water works shop | | 11 89 | |
| | | <hr/> | 295 22 |

*Acc't South Side Pumping
Works.*

Fourteenth street.

Paid for—

| | | | |
|---|----|------------|----------------|
| Labor | \$ | 30,642 15 | |
| Brick | | 4,171 26 | |
| Cement | | 4,507 86 | |
| Lumber | | 1,166 31 | |
| Stone | | 560 97 | |
| Cut stone work | | 7,629 00 | |
| Carpenter work and masonry | | 31,450 00 | |
| Sewerage | | 1,208 50 | |
| Steel floor | | 4,794 00 | |
| Engines and boilers (on ac- count) | | 11,074 16 | |
| Iron roof | | 12,444 00 | |
| Sand | | 379 07 | |
| Plumbing | | 316 55 | |
| Iron beams and iron work .. | | 317 23 | |
| Pile driving | | 41 84 | |
| Damages | | 150 00 | |
| Wire and rope | | 29 74 | |
| Railroad and car fare | | 12 30 | |
| Coal | | 347 62 | |
| Teaming | | 67 19 | |
| Oil | | 20 70 | |
| Tools and repairing | | 121 75 | |
| Advertising and printing ... | | 142 50 | |
| Salt | | 10 20 | |
| Brooms and brushes | | 9 75 | |
| Hardware | | 39 43 | |
| Mud drums | | 972 00 | |
| Waste and packing | | 68 47 | |
| Glass | | 31 75 | |
| | | <hr/> | |
| Carried forward, | \$ | 112,726 30 | \$2,006,753 70 |

| | | |
|---------------------|---------------|----------------|
| Brought forward, | \$ 112,726 30 | \$2,006,753 70 |
| Tin pumps | 10 00 | |
| Stone cutting | 27 00 | |
| Sundries | 25 17 | |
| | <hr/> | 112,788 47 |

Acc't New Lake Tunnel.

| | | |
|--|---------------|------------|
| Paid contractor | \$ 178,380 92 | |
| Paid engineers, draughtsmen, inspectors and rodmen... | 37,602 38 | |
| Paid for— | | |
| Repairing instruments | 14 50 | |
| Hardware | 19 33 | |
| Lumber | 13 79 | |
| Pipe | 10 03 | |
| Iron work | 13 31 | |
| Traveling expenses | 43 70 | |
| One table | 8 40 | |
| Soap and candles | 41 80 | |
| Coal | 227 02 | |
| Meals | 245 59 | |
| Blue prints and stationery .. | 27 04 | |
| Sundries | 26 89 | |
| | <hr/> | 216,674 70 |

Acc't New Lake Tunnel Crib.

| | |
|-----------------------|------------|
| Paid contractor | 136,860 73 |
|-----------------------|------------|

Acc't New Land Tunnel.

| | |
|-----------------------|-----------|
| Paid contractor | 28,985 66 |
|-----------------------|-----------|

Acc't Lake View Water Tunnel.

| | | |
|-----------------------------|--------------|----------------|
| Paid contractor | \$ 64,502 10 | |
| Paid for— | | |
| Engineering and inspecting. | 9,894 65 | |
| Pipe and forging | 125 77 | |
| Carpenter work | 62 18 | |
| Rope and waste | 64 76 | |
| Hardware | 10 11 | |
| | <hr/> | |
| Carried forward, | \$ 74,659 57 | \$2,502,063 26 |

BOOK-KEEPER'S STATEMENT.

361

| | | |
|---|--------------|----------------|
| Brought forward, | \$ 74,859 57 | \$2,502,063 26 |
| Teaming..... | 6 60 | |
| Repairing boat.... | 58 48 | |
| Profile paper..... | 11 25 | |
| Sundries..... | 9 21 | |
| | <hr/> | |
| | \$ 74,745 11 | |
| Charged annexed territory.. | 21,611 24 | |
| | <hr/> | |
| Charged water fund..... | | 53,133 87 |
| <i>Acc't Water Service Cocks.</i> | | |
| Paid for— | | |
| Labor..... | \$48,914 31 | |
| Ferrules..... | 11,815 38 | |
| Plumbing..... | 111 88 | |
| Taps and drills..... | 527 10 | |
| One horse..... | 135 00 | |
| Repairing tapping machine. | 446 10 | |
| Round ways | 120 00 | |
| Stop-cocks..... | 104 00 | |
| Altering patterns | 35 00 | |
| Railroad and car fare | 494 96 | |
| Water Works shop..... | 169 59 | |
| Stabling and horse keep.... | 1,847 53 | |
| Lengthening sewer pipes.... | 89 85 | |
| Fixing up tapper's room.... | 11 95 | |
| Vault boxes..... | 22 68 | |
| Gauges..... | 20 00 | |
| Moving boxes.... | 160 00 | |
| Tools | 11 50 | |
| Permits canceled..... | 17 80 | |
| Advertising | 22 50 | |
| Decrease of stock..... | 285 27 | |
| Chain..... | 8 25 | |
| Books, printing and station- ery | 79 75 | |
| Sundries..... | 3 31 | |
| | <hr/> | |
| | \$ 65,453 71 | |
| Charged annexed territory.. | 1,841 30 | |
| | <hr/> | |
| Charged water fund..... | | 63,612 41 |
| | | <hr/> |
| Carried forward, | | \$2,618,809 54 |

Brought forward,

\$2,618,809 54

Acc't Miscellaneous Expenses.

Paid for—

| | |
|---|--------------|
| Salaries, City Engineer's office, etc | \$ 11,088 31 |
| Services relating to water supply..... | 5,000 00 |
| Labor..... | 2,262 65 |
| Office rent..... | 1,073 33 |
| On account of pay wagon... | 146 25 |
| On account of annual report | 386 08 |
| Laying water pipe..... | 319 28 |
| Pile driving..... | 384 00 |
| Railroad and car fare..... | 144 97 |
| Advertising..... | 15 36 |
| Horse keep and shoeing.... | 49 35 |
| Stationery and drawing material | 206 78 |
| Maps | 19 08 |
| Rain gaugers..... | 119 45 |
| Steam fitting..... | 14 05 |
| Lumber..... | 533 47 |
| Hardware..... | 28 13 |
| One city directory | 6 00 |
| Removing posts..... | 25 00 |
| Newspapers..... | 41 90 |
| Sundries..... | 201 52 |
| Type writer..... | 88 00 |

\$ 22,152 96

Charged annexed territory..

1,106 58

Charged water fund.....
21,046 38

Acc't Lake Tunnel Crib.

Paid for—

| | |
|--------------------------------|-------------|
| Crib keeper's salary and labor | \$ 2,650 00 |
| Paint, oil and packing..... | 430 21 |
| Boarding men..... | 419 50 |
| Plumbers' supplies..... | 35 81 |
| Coal..... | 221 00 |

Carried forward,
\$ 3,756 52

\$2,639,855 92

BOOK-KEEPER'S STATEMENT.

363

| | | | |
|------------------------|----|----------|----------------|
| Brought forward, | \$ | 3,756 52 | \$2,639,855 92 |
| Rope..... | | 12 50 | |
| Freight..... | | 125 00 | |
| Tug service..... | | 2,700 00 | |
| Repairing boats..... | | 44 00 | |
| Water Works shop..... | | 30 62 | |
| Glass..... | | 14 48 | |
| Lumber..... | | 32 90 | |
| Rubber boots..... | | 11 82 | |
| Hardware | | 6 47 | |
| Iron work | | 3 49 | |
| Pipe and fittings..... | | 7 22 | |
| Sundries | | 30 71 | |
| | | <hr/> | 6,775 73 |

Acc't New Shore Inlet Extension.

Paid for—

| | | | |
|------------------------|----|--------|--------|
| Engineering | \$ | 241 86 | |
| Labor..... | | 446 75 | |
| Blue-prints | | 1 20 | |
| Pipe and fittings..... | | 13 79 | |
| Hardware | | 3 69 | |
| Grappling-tool..... | | 2 00 | |
| Water Works shop..... | | 7 01 | |
| | | <hr/> | 716 10 |

Acc't Water Office Salaries.

Paid salaries—

| | | | |
|---------------------------------------|----|-----------|--|
| Collecting water rents assessed | \$ | 67,659 94 | |
| Collecting meter rents..... | | 20,270 78 | |
| Inspectors..... | | 51,643 93 | |
| Assessors and draughtsmen. | | 28,671 05 | |
| Shut-off men | | 35,136 83 | |

| | | | |
|-----------------------------|----|------------|--|
| | \$ | 203,382 53 | |
| Charged annexed territory.. | | 17,684 48 | |

| | | | |
|-------------------------|--|-------|------------|
| Charged water fund..... | | <hr/> | 185,698 05 |
|-------------------------|--|-------|------------|

| | | | |
|------------------|--|-------|----------------|
| Carried forward, | | <hr/> | \$2,833,045 80 |
|------------------|--|-------|----------------|

| | | |
|--|----|----------------|
| Brought forward, | | \$2,833,045 80 |
| <i>Acc't Water Offices Expenses.</i> | | |
| Paid for— | | |
| Books, printing and stationery | \$ | 3,145 42 |
| Postage | | 1,269 50 |
| Railroad and car fare | | 3,134 42 |
| Binding books and papers .. | | 376 19 |
| Atlases and maps | | 1,073 53 |
| Shovels, tapelines, etc | | 251 75 |
| Advertising | | 209 70 |
| Rent | | 68 00 |
| Re-fitting district offices .. | | 246 15 |
| Moving and repairing safes .. | | 70 00 |
| Express charges | | 42 90 |
| Watchmen, cleaners and scrubbers | | 443 67 |
| Coin safes | | 20 00 |
| Hardware | | 28 29 |
| Rubber stamps | | 17 75 |
| Office furniture | | 44 45 |
| Tin boxes | | 22 68 |
| Candles and matches | | 19 56 |
| Mimeograph | | 20 00 |
| Use of horse | | 36 00 |
| Time service | | 12 00 |
| Fuel | | 207 50 |
| Ice | | 46 00 |
| Gas | | 9 60 |
| City directories | | 24 00 |
| Hydrant wrenches | | 7 20 |
| Locksmithing | | 8 75 |
| Wire work | | 34 25 |
| Window plate signs | | 16 00 |
| Stove pipe | | 3 20 |
| Soap | | 3 25 |
| Miscellaneous supplies | | 352 98 |
| | \$ | 11,254 69 |
| Charged annexed territory .. | | 936 57 |
| Charged water fund | | 10,328 12 |
| Carried forward, | | \$2,843,373 92 |

Brought forward, \$2,843,373 92

Acc't Water Fund's Proportion of Commissioner's Office Expenses and Salaries.

Paid—

| | |
|---|-------------|
| Salaries of Commissioner, secretary, bookkeeper and others..... | \$ 6,088 32 |
| For books, printing and stationery..... | 847 60 |
| Postage..... | 125 70 |
| Railroad and car fare..... | 462 30 |
| Maps..... | 70 00 |
| On account annual report.. | 1,168 35 |
| Livery..... | 10 00 |
| Tin boxes..... | 5 00 |
| Newspapers..... | 19 73 |
| Binding papers..... | 40 00 |
| Three city directories..... | 18 00 |
| Sundries..... | 37 48 |
| | <hr/> |
| | \$ 8,892 48 |
| Charged annexed territory.. | 181 90 |
| | <hr/> |
| Charged water fund..... | 8,710 58 |

Other Expenditures.

Paid—

| | |
|---|---------------|
| Water loan interest..... | \$ 309,624 50 |
| Repairs on city's buildings on Michigan avenue..... | 725 38 |
| W. S. Maher, clerk, for making change..... | 50 00 |
| Money advanced refunded.. | 24,909 79 |
| Pipe, castings and other material..... | 25,877 01 |
| Deposits for hydrant wrenches refunded..... | 280 00 |
| Double payments of water rents paid back..... | 184 47 |
| | <hr/> |
| | 361,651 15 |

Total expenditures..... \$3,213,735 65

SEWERAGE FUND.

RECEIPTS.

| | | |
|--|--------------|---------------|
| Received for drain permits. | \$ 82,794 05 | |
| Credited annexed territory.. | 6,776 45 | |
| | <hr/> | |
| Credited sewerage fund..... | | \$ 76,017 60 |
| Received from voucher deposited back..... | | 65 00 |
| Received for drain layers' licenses..... | | 1,265 00 |
| Appropriated by City Council for— | | |
| Cleaning sewers and catch-basins..... | \$ 80,000 00 | |
| Repairing sewers and catch-basins..... | 11,000 00 | |
| Raising catch-basins to grade | 70,000 00 | |
| Sewerage sinking fund..... | 500 00 | |
| River improvement sinking fund | 500 00 | |
| Sewerage office salaries.... | 27,000 00 | |
| Sewerage proportional salaries and office expenses... | 8,406 66 | |
| Constructing sewers..... | 398,705 34 | |
| Refunding money advanced | 7,200 00 | |
| | <hr/> | 603,312 00 |
| Amount advanced by sundry parties for constructing sewers | | 5,836 00 |
| Amount received from private parties for labor and material..... | 2,900 59 | |
| Credited annexed territory.. | 32 00 | |
| | <hr/> | |
| Credited sewerage fund.... | | 2,868 59 |
| Deposits by land owners for cost of constructing sewers | | 33,515 91 |
| Amount received for labor and material..... | | 6,637 60 |
| | | <hr/> |
| Carried forward, | | \$ 729,517 70 |

| | |
|--|----------------------|
| Brought forward, | \$ 729,517 70 |
| Amount received from special assessment fund for building catch-basins.... | 10,867 50 |
| Total receipts..... | <u>\$ 740,385 20</u> |

EXPENDITURES.

Acc't Sewers North Division.

| | |
|--|---------------------|
| Paid for— | |
| Labor..... | \$ 4,896 21 |
| Catch-basins..... | 5,657 04 |
| Constructing sewers (contractors)..... | 1,940 12 |
| Teaming..... | 218 47 |
| Plumbing... . | 86 50 |
| Draughting | 64 00 |
| Sewer pipe..... | 167 50 |
| Sewer brick..... | 1 18 |
| Iron covers..... | 7 00 |
| Cement..... | 9 60 |
| Proportion of office expenses | 75 00 |
| Horse keep..... | 90 00 |
| Sewers built by private parties..... | 10,237 28 |
| | <u>\$ 23,449 90</u> |
| Charged annexed territory.. | 160 09 |
| Charged sewerage fund..... | <u>\$ 23,289 81</u> |

Acc't Sewers South Division.

| | |
|--|---|
| Paid for— | |
| Labor..... | \$ 17,149 99 |
| Catch basins..... | 12,441 38 |
| Constructing sewers (contractors)..... | 49,223 11 |
| Sewers built by private parties..... | 17,759 29 |
| Maps and plats..... | 750 60 |
| Binding atlas..... | 35 50 |
| Carried forward, | <u>\$ 97,359 87</u> <u>\$ 23,289 81</u> |

| | | |
|------------------------------------|---------------|---------------|
| Brought forward, | \$ 97,359 87 | \$ 23,289 81 |
| Damages..... | 33 00 | |
| Setting junctions..... | 13 75 | |
| Horse keep and shoeing.... | 406 00 | |
| Teaming..... | 698 83 | |
| Paving..... | 63 35 | |
| Plumbing..... | 669 23 | |
| Re-setting curb..... | 65 60 | |
| Proportion of office expenses | 150 00 | |
| Sewer pipe..... | 548 49 | |
| Oil..... | 10 72 | |
| Sand..... | 12 00 | |
| Iron covers..... | 7 00 | |
| Cement..... | 123 60 | |
| Earth filling..... | 4 50 | |
| Sewer brick..... | 198 24 | |
| Printing..... | 10 75 | |
| Hardware..... | 1 14 | |
| | <hr/> | |
| | 100,376 07 | |
| Charged annexed territory.. | 280 25 | |
| | <hr/> | |
| Charged sewerage fund..... | | 100,095 82 |
| <i>Acc't Sewers West Division.</i> | | |
| Paid for— | | |
| Labor..... | \$ 25,751 33 | |
| Constructing sewers (con- | | |
| tractors).... | 77,954 84 | |
| Plumbing..... | 1,021 74 | |
| Catch-basins..... | 27,521 84 | |
| Teaming..... | 1,354 29 | |
| Coal..... | 19 50 | |
| Removing earth..... | 123 00 | |
| Maps and plats..... | 302 50 | |
| Paving..... | 978 00 | |
| Repairing instruments..... | 15 75 | |
| Horse-keep..... | 36 00 | |
| Damages..... | 32 75 | |
| Surveys..... | 45 00 | |
| Brick..... | 977 71 | |
| Sewer pipe..... | 2,405 60 | |
| | <hr/> | |
| Carried forward, | \$ 138,539 85 | \$ 123,385 63 |

BOOK-KEEPER'S STATEMENT.

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| | | |
|--|---------------|---------------|
| Brought forward, | \$ 138,539 85 | \$ 123,385 63 |
| Sand | 190 00 | |
| Wooden covers..... | 22 71 | |
| Iron covers..... | 7 00 | |
| Cement | 409 20 | |
| Proportion of office ex- penses | 200 00 | |
| | <hr/> | 139,368 76 |

Acc't House Drains.

| | | |
|---|--------------|--------------|
| Paid for— | | |
| Salaries and labor | \$ 49,078 69 | |
| Books, printing and station- ery | 513 78 | |
| Relaying drains..... | 186 40 | |
| Building sewer stubs..... | 41 00 | |
| Permits transferred | 75 00 | |
| Maps and plats..... | 120 00 | |
| Furniture | 29 00 | |
| Paving..... | 22 00 | |
| Wire railing..... | 12 00 | |
| Plumbing | 5 00 | |
| Teaming | 713 25 | |
| Proportion of office expense | 2,388 88 | |
| Cement | 22 60 | |
| Brick | 14 72 | |
| Sewer pipe | 275 01 | |
| Building sumps..... | 20 00 | |
| Sundries | 9 90 | |
| Depreciation of stock..... | 270 82 | |
| | <hr/> | \$ 53,798 05 |
| Charged annexed territory .. | 4,895 90 | |
| | <hr/> | 48,962 15 |

*Acc't Cleaning Sewers and
Catch-basins.*

| | | |
|--------------------|---------------|---------------|
| Paid for— | | |
| Labor..... | \$ 91,723 82 | |
| Teaming | 13,848 65 | |
| Coal and wood..... | 488 43 | |
| | <hr/> | |
| Carried forward, | \$ 106,060 90 | \$ 311,716 54 |

Brought forward, \$ 503,527 70
Acc't Sewerage Office Salaries.

Paid for—
 Salaries of employes..... \$ 26,653 28
 Charged annexed territory.. 2,700 00

 Charged sewerage fund..... 23,953 28

Acc't Sewerage Funds Proportion of Commissioner's Office Expenses and Salaries.

Paid for—
 Books, printing and stationery \$ 781 88
 Postage..... 174 57
 Railroad and car fare..... 368 13
 Atlas of Cicero..... 66 67
 Annual report (on account). 1,436 33
 Sundries..... 45 65
 Badges..... 35 00
 Newspapers..... 33 25
 Horse keep..... 7 50
 One-third salary of Commissioner, secretary, book-keeper and others 6,060 82

\$ 9,009 80
 Charged annexed territory.. 10 00

Charged sewerage fund..... 8,999 80

Other Expenditures from Sewerage Fund.

Paid—
 River improvement sinking fund \$ 500 00
 Sewerage sinking fund..... 500 00
 Material on hand..... 6,324 33
 Advances and deposits refunded 7,726 95
 Special assessment fund.... 60,750 00
 Increase of stock..... 2,500 00

78,301 28

Total expenditures.....

\$614,782 06

APPROPRIATION FUND.

RECEIPTS.

Acc't Improved Streets.

| | | |
|--|---------------|--------------|
| Amount appropriated by City Council..... | \$350,000 00 | |
| Amount received for— | | |
| Paving and inspecting..... | 29,247 81 | |
| Use of steam roller..... | 2,499 50 | |
| Scrap iron..... | 36 50 | |
| Earth filling..... | 50 00 | |
| Removing dirt..... | 89 80 | |
| Building curb wall..... | 50 00 | |
| Resetting curb..... | 20 00 | |
| Labor..... | 8 75 | |
| Sprinkling..... | 240 00 | |
| Cleaning lake front..... | 466 75 | |
| | <hr/> | |
| | \$ 382,709 11 | |
| Credited annexed territory.. | 2,201 30 | |
| | <hr/> | |
| Credited appropriation fund. | | \$380,507 81 |

Acc't Unimproved Streets.

| | | |
|---|---------------|---------------|
| Amount appropriated by City Council..... | \$ 200,000 00 | |
| Received from special assessment fund for constructing sidewalks..... | 25,822 52 | |
| Received from Health Department, for cleaning alleys, etc..... | 19,877 42 | |
| Received for labor..... | 102 85 | |
| Received for cleaning culverts..... | 11 00 | |
| | <hr/> | |
| | \$ 245,813 79 | |
| Credited annexed territory.. | 21 10 | |
| | <hr/> | |
| Credited appropriation fund. | | 245,792 69 |
| | | <hr/> |
| Carried forward, | | \$ 626,300 50 |

| | | |
|---|--------------|---------------|
| Brought forward, | | \$ 628,800 50 |
| <i>Acc't Street Permits.</i> | | |
| Received charges on permits to occupy streets..... | \$ 10,484 00 | |
| Received charges on permits to open streets (repaving, etc)..... | 11,628 23 | |
| Received for scale permits.. | 54 00 | |
| Received for vault permits.. | 33 00 | |
| | <hr/> | |
| | \$ 22,199 23 | |
| Deduct amount received by transfer from permit depositors' accounts | 22,095 73 | |
| | <hr/> | |
| | \$ 103 50 | |
| Credited annexed territory.. | 16 50 | |
| | <hr/> | |
| Credited appropriation fund. | | 87 00 |

Acc't Permit Depositors.

| | | |
|---|--------------|-----------|
| Received deposits for permits to use or occupy streets for building purposes..... | \$ 14,165 00 | |
| Received deposits for permits to open streets for laying service pipes..... | 36,705 00 | |
| | <hr/> | |
| | \$ 50,870 00 | |
| Credited annexed territory.. | 827 00 | |
| | <hr/> | |
| Credited appropriation fund. | | 50,043 00 |

Acc't House Moving Permits.

| | | |
|---|-------------|---------------|
| Amount received for house moving permits..... | \$ 5,231 00 | |
| Credited annexed territory.. | 305 00 | |
| | <hr/> | |
| Credited appropriation fund. | | 4,926 00 |
| | <hr/> | |
| Carried forward, | | \$ 681,356 50 |

Brought forward, \$ 681,356 50

Acc't Bridge and Viaduct Repairs.

Amount appropriated by City

Council..... \$ 123,500 00

Received for—

Damages to bridges..... 305 13

Scrap iron..... 868 06

Empty barrels..... 14 00

Laying tracks on North
avenue bridge..... 113 94

Voucher deposited back.... 33 95

Maintaining State street via-
duct..... 400 00

125,235 08

Acc't Public Buildings.

Amount appropriated by City

Council \$ 76,678 00

Received for—

Empty barrels..... 14 40

Electric lamp fittings..... 12 36

Scrap iron..... 75 52

\$ 76,780 28

Credited annexed territory.. 14 40

Credited appropriation fund 76,765 88

Acc't Street Lamps.

Received for—

Lamps and lamp posts..... \$ 144 49

Gasoline..... 129 32

Oil cans..... 10 10

Damages..... 162 66

\$ 446 57

Credited annexed territory.. 7 80

Credited appropriation fund 438 77

Carried forward, \$ 883,796 23

| | | |
|---|--------------|----------------|
| Brought forward, | | \$ 883,796 23 |
| <i>Acc't Chicago Harbor.</i> | | |
| Amount appropriated by City Council | \$ 54,900 00 | |
| Amount received for dredging..... | 303 60 | |
| | | 55,203 60 |
| <i>Acc't Canal Pumping Works.</i> | | |
| Amount appropriated by City Council | \$ 58,475 00 | |
| Received for empty barrels. | 46 05 | |
| | | 58,521 05 |
| <i>Acc't Sidewalks.</i> | | |
| <i>General repairs and intersections.</i> | | |
| Amount appropriated by City Council | \$ 50,000 00 | |
| Received for labor..... | 68 00 | |
| | | 50,068 00 |
| <i>Acc't Canal Street Bridge.</i> | | |
| Amount appropriated by City Council | \$ 10,000 00 | |
| Amount contributed by private parties | 8,450 00 | |
| | | 18,450 00 |
| <i>Acc't Bridge Tenders' Salaries.</i> | | |
| Amount appropriated by City Council | \$ 82,730 00 | |
| Amount received from bridge tenders.... | 25 00 | |
| | | 82,755 00 |
| <i>Acc't Salaries.</i> | | |
| Amount appropriated by City Council | \$ 40,190 00 | |
| Received from Board of Education for services of surveyor | 180 00 | |
| | | 40,370 00 |
| Carried forward, | | \$1,189,163 88 |

BOOK-KEEPER'S STATEMENT.

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Brought forward, \$1,189,163 88

Acc't Lake Park.

Amount received from
Comptroller 124 75

Acc't Special Assessments.

Amount received from special
assessment fund for cost of
making and collecting
special assessments, salaries
and office expenses... \$ 226,009 19

Amount received for use of
steam roller..... 937 25

226,946 44

Miscellaneous Appropriations.

For—

| | | |
|--|-------------|------------|
| Vessel dispatcher..... | \$ 2,400 00 | |
| Washington street bridge approaches | 32,200 00 | |
| Public benefits (improving intersections) | 401,006 51 | |
| Ogden ditch dam..... | 1,000 00 | |
| Canal pumping works extension | 150,000 00 | |
| Fullerton avenue conduit... | 19,065 00 | |
| Public parks..... | 9,500 00 | |
| One-third salary and office expenses of Commissioner and others..... | 8,406 66 | |
| City Engineer's office expenses..... | 750 00 | |
| Street Department office expenses..... | 1,000 00 | |
| Map office expenses..... | 900 00 | |
| Deficiency in collection of taxes | 19,552 03 | |
| | <hr/> | 645,680 20 |

Carried forward, \$2,061,915 27

| | | |
|------------------------------|--------------|-----------------------------|
| Brought forward, | | \$2,061,915 27 |
| <i>Other Receipts.</i> | | |
| From General Fund..... | \$ 75,000 00 | |
| From Health Department... | 5,122 58 | |
| From deposits for inspection | 2,400 00 | |
| From deposits for street im- | | |
| provements..... | 44,366 06 | |
| | <hr/> | 126,888 64 |
| Total Receipts..... | | <hr/> <u>\$2,188,803 91</u> |

EXPENDITURES.

Acc't Improved Streets.

| | |
|-------------------------------|---------------|
| Paid for— | |
| Labor | \$ 228,544 07 |
| Cleaning and sweeping (con- | |
| tract) | 111,192 09 |
| Tools and repairing..... | 1,355 49 |
| Paving | 793 70 |
| Paving blocks..... | 11,520 85 |
| Macadam and cinders..... | 19,936 02 |
| Gravel | 4,262 62 |
| Lumber | 6,300 00 |
| Granite..... | 250 00 |
| Stone flagging..... | 58 30 |
| Felt and tar..... | 520 71 |
| Sidewalks..... | 138 00 |
| Railroad and car fare..... | 529 31 |
| Teaming..... | 41 25 |
| Deposit refunded..... | 1,000 00 |
| Resetting curbs..... | 833 33 |
| Hardware..... | 1,114 75 |
| Ground rent..... | 225 00 |
| Coal..... | 182 91 |
| Waste and oil..... | 134 14 |
| Lanterns and globes | 75 50 |
| Advertising, printing, etc... | 128 71 |
| Doors and window frames.. | 31 15 |
| Sand and brick..... | 30 75 |
| Sprinkling | 365 50 |
| | <hr/> |
| Carried forward, | \$ 389,564 15 |

| | | |
|---|---------------|---------------|
| Brought forward, | \$ 389,564 15 | |
| Blacksmithing..... | 91 30 | |
| Plumbing..... | 6 50 | |
| Sundries..... | 50 31 | |
| Wagon boxes..... | 62 50 | |
| | <hr/> | |
| | \$ 389,774 76 | |
| Deduct amount transferred to bridges and viaducts... | 2,389 56 | |
| | <hr/> | |
| | \$ 387,385 20 | |
| Charged annexed territory.. | 5,031 28 | |
| | <hr/> | |
| Charged appropriation fund. | | \$ 382,353 92 |

Acc't Unimproved Streets.

| | | |
|---------------------------------------|---------------|---------------|
| Paid for— | | |
| Labor..... | \$ 217,859 04 | |
| Hardware..... | 3,789 82 | |
| Lumber..... | 40,162 55 | |
| Macadam and cinders..... | 10,791 61 | |
| Tools and repairing..... | 737 46 | |
| Railroad and car fare..... | 76 60 | |
| Postage..... | 37 80 | |
| Curb wall and resetting..... | 425 55 | |
| Ground rent..... | 970 82 | |
| Blacksmithing..... | 212 40 | |
| Planking..... | 125 00 | |
| Account pay wagon..... | 146 25 | |
| Horse keep..... | 127 67 | |
| Rubber goods..... | 121 50 | |
| Grading and improving streets..... | 3,651 26 | |
| Repairing crossings..... | 76 00 | |
| Stone..... | 32 30 | |
| Paving..... | 40 00 | |
| Building drain..... | 17 40 | |
| Brick ... | 71 88 | |
| Stoves..... | 28 90 | |
| Cement..... | 55 07 | |
| | <hr/> | |
| Carried forward, | \$ 279,556 88 | \$ 382,353 92 |

| | | |
|-------------------------------------|---------------|---------------|
| Brought forward, | \$ 279,556 88 | \$ 382,353 92 |
| Steam fitting..... | 64 33 | |
| Waste | 2 40 | |
| Sundries | 62 50 | |
| | <hr/> | |
| | \$ 279,686 11 | |
| Charged annexed territory.. | 49,685 12 | |
| | <hr/> | |
| Charged appropriation fund | | 230,000 99 |
| <i>Acc't Sidewalks, General Re-</i> | | |
| <i>pairs.</i> | | |
| Paid for— | | |
| Labor..... | \$ 58,898 00 | |
| Hardware | 932 76 | |
| Lumber | 8,512 38 | |
| Railroad and car fare.. | 282 39 | |
| Postage..... | 92 82 | |
| Stone walk..... | 76 93 | |
| Tools | 5 35 | |
| Advertising..... | 28 75 | |
| | <hr/> | |
| | \$ 68,828 88 | |
| Charged annexed territory.. | 6,947 20 | |
| | <hr/> | |
| Charged appropriation fund | | 61,881 68 |
| <i>Acc't Sidewalks, Intersec-</i> | | |
| <i>tions.</i> | | |
| Paid for— | | |
| Labor | \$ 32,176 82 | |
| Lumber | 8,512 38 | |
| Nails | 914 36 | |
| Crosswalks..... | 162 49 | |
| Car fare | 25 52 | |
| Postage | 12 00 | |
| | <hr/> | |
| | \$ 41,803 57 | |
| Charged annexed territory.. | 3,822 87 | |
| | <hr/> | |
| Charged appropriation fund | | 37,980 70 |
| Carried forward, | | \$ 712,217 29 |

Brought forward,

\$ 712,217 29

*Acc't Public Buildings.**Maintenance of City Hall.*

Paid for—

| | |
|--|--------------|
| Labor..... | \$ 22,607 89 |
| Janitor's supplies..... | 578 27 |
| Carpets and matting..... | 989 49 |
| Hardware..... | 593 50 |
| Painting and cleaning walls. | 801 00 |
| Plumbing..... | 620 04 |
| Repairing tanks..... | 594 58 |
| Lumber..... | 888 11 |
| Locksmithing..... | 132 70 |
| Paint and oil..... | 360 77 |
| Lettering doors..... | 8 00 |
| Brick and lime..... | 89 85 |
| Urinal..... | 16 00 |
| Wire work..... | 48 75 |
| Repairing sidewalks..... | 297 03 |
| Glass | 237 52 |
| Ladders..... | 21 22 |
| Glue..... | 19 94 |
| Calcimining..... | 40 00 |
| Curtains and towels..... | 58 54 |
| Lathing and plastering. ... | 97 15 |
| Two gavels..... | 12 00 |
| Awnings..... | 13 75 |
| Office rent..... | 133 34 |
| Iron gate..... | 20 00 |
| Brooms..... | 4 90 |
| Hose and couplings..... | 23 60 |
| Rubber boots..... | 2 55 |
| Advertising, books and stationery..... | 34 45 |
| Repairing flag..... | 4 00 |
| Cement..... | 40 10 |
| Furniture..... | 136 37 |
| Toilet paper..... | 134 38 |
| Glass signs..... | 13 56 |
| Sundries..... | 49 71 |

Carried forward.

\$29,723 06 \$ 712,217 29

Brought forward, \$ 29,723 06 \$ 712,217 29

B.—Operating City Hall.

Paid for—

| | |
|------------------------------|-----------|
| Labor..... | 24,544 94 |
| Coal..... | 21,027 86 |
| Electric lamps and supplies. | 2,585 23 |
| Gas..... | 478 60 |
| Repairing elevators..... | 813 30 |
| Steam fitting..... | 265 43 |
| Carpets and furniture | 295 78 |
| Castings | 53 55 |
| Expressing | 18 50 |
| Paint, oil and brushes..... | 650 23 |
| Drip pans .. | 14 00 |
| City Hall directory..... | 216 16 |
| Tools | 42 02 |
| Repairing machinery..... | 1,708 26 |
| Plumbing..... | 33 25 |
| Hardware | 37 75 |
| Ice | 275 35 |
| Waste and packing..... | 119 80 |
| Soap..... | 47 40 |
| Brooms | 10 26 |
| Repairing scales..... | 30 57 |
| Engineer supplies | 187 19 |
| Lumber | 120 14 |
| Mail boxes | 15 75 |
| Metal polish | 24 73 |
| Stationery | 2 00 |
| Tin work..... | 2 80 |
| Lanterns | 1 47 |
| Sundries | 43 85 |

\$ 83,389 23

Charged annexed territory.. 178 30

Charged to appropriation
fund.....

83,210 93

Carried forward,

\$ 795,428 22

Brought forward, \$ 795,428 22

Acc't Lake Park.

Paid for—

| | | |
|---------------------|-------------|----------|
| Labor..... | \$ 2,645 44 | |
| Seed..... | 30 60 | |
| Hose and tools..... | 64 41 | |
| Sodding..... | 10 00 | |
| Oil | 1 04 | |
| | | 2,751 49 |

Acc't Ellis Park.

Paid for—

| | | |
|----------------------|-----------|--------|
| Labor..... | \$ 652 00 | |
| Hose and couplings.. | 20 00 | |
| Seed..... | 7 00 | |
| Trees | 144 00 | |
| Painting..... | 60 00 | |
| Tools | 18 10 | |
| Sodding..... | 10 00 | |
| | | 911 10 |

Acc't Douglas Monument Square.

Paid for—

| | | |
|--------------------------|-----------|--------|
| Labor.... | \$ 660 75 | |
| Seed..... | 5 80 | |
| Sodding..... | 4 00 | |
| Hose and couplings..... | 24 55 | |
| Tools and repairing..... | 30 10 | |
| | | 725 20 |

Acc't Aldine Square.

Paid for—

| | | |
|-------------------------|-----------|--------|
| Labor..... | \$ 652 00 | |
| Trees..... | 108 00 | |
| Hose and couplings..... | 25 50 | |
| Coal..... | 75 52 | |
| | | 861 02 |

Acc't Campbell Park and Bickerdike Square.

Paid for—

| | | |
|---------------|----------|--------|
| Plumbing..... | \$ 76 00 | |
| Labor..... | 250 00 | |
| | | 326 00 |

Carried forward, \$ 801,003 03

| | | |
|--|---------------|---------------|
| Brought forward, | | \$ 801,003 03 |
| <i>Acc't Gross Park.</i> | | |
| Paid for— | | |
| Labor..... | \$ 82 00 | |
| Hose and couplings..... | 64 04 | |
| | <hr/> | 146 04 |
| <i>Acc't Jefferson Park.</i> | | |
| Paid for— | | |
| Pipe and fittings..... | \$ 31 62 | |
| Stone | 11 00 | |
| Labor..... | 513 00 | |
| | <hr/> | 555 62 |
| <i>Acc't Washington Square, Union Square, Oak Park and Green Bay Park.</i> | | |
| Paid for— | | |
| Labor..... | \$ 2,748 94 | |
| Paint and oil..... | 29 16 | |
| Tools | 23 48 | |
| Sprinkling..... | 87 50 | |
| | <hr/> | 2,889 08 |
| <i>Acc't Shedd's Park.</i> | | |
| Paid for— | | |
| Trees and earth filling..... | | 125 00 |
| <i>Acc't Bridge Repairs.</i> | | |
| Paid for— | | |
| Carpenter work and labor.. | \$ 70,350 03 | |
| Iron and machine work.... | 16,890 45 | |
| Lumber..... | 21,029 11 | |
| Coal..... | 7,607 49 | |
| Paving..... | 1,933 53 | |
| Rope and chain..... | 403 67 | |
| Paint, oil and grease..... | 2,325 74 | |
| Hardware | 1,588 27 | |
| Damages. | 552 59 | |
| Repairing bridge houses ... | 62 02 | |
| Lamps, globes and tin work. | 513 13 | |
| | <hr/> | |
| Carried forward, | \$ 123,256 03 | \$ 804,718 77 |

| | | |
|---|----|---------------|
| Brought forward, | | \$804,718 77 |
| Railroad and car fare..... | \$ | 210 21 |
| Masonry..... | | 426 67 |
| Plumbing..... | | 110 13 |
| Lead..... | | 17 70 |
| Gasket and packing..... | | 103 27 |
| Bridge wheels and tracks... | | 3,241 98 |
| Pile driving and dredging... | | 13,970 82 |
| Constructing dock..... | | 200 00 |
| Lamp posts..... | | 70 00 |
| Doors and windows. | | 67 77 |
| Covering steam pipes..... | | 9 00 |
| Jackscrews..... | | 523 06 |
| Clocks and repairing..... | | 28 50 |
| Iron bedstead..... | | 6 75 |
| Stoves..... | | 36 44 |
| Rent..... | | 100 00 |
| Tug and scow service..... | | 41 00 |
| Stone cutting..... | | 115 00 |
| Bridge bells..... | | 132 20 |
| Awnings and gaskets..... | | 69 55 |
| One ladder..... | | 40 00 |
| Miscellaneous bridge sup- plies..... | | 526 62 |
| Sundries..... | | 176 34 |
| | | <hr/> |
| | | \$ 143,479 04 |
| Charged annexed territory.. | | 2,394 49 |
| | | <hr/> |
| Charged appropriation fund. | | 141,084 55 |
| <i>Acc't Viaduct Repairs.</i> | | |
| Paid for— | | |
| Labor..... | \$ | 15,426 13 |
| Lumber..... | | 6,956 56 |
| Iron work..... | | 644 49 |
| Paint and oil..... | | 356 13 |
| Repairing buildings..... | | 140 00 |
| Paving..... | | 608 32 |
| Stone caps..... | | 125 00 |
| Repairing scales..... | | 32 94 |
| Cement..... | | 13 09 |
| | | <hr/> |
| | | 24,302 66 |
| | | <hr/> |
| Carried forward, | | \$970,105 98 |

Brought forward,

\$970,105 98

Acc't Chicago Harbor.

Paid for—

| | |
|--------------------------------------|--------------|
| Harbormaster's salary and labor..... | \$ 15,691 61 |
| Dredging..... | 68,802 49 |
| Removing obstructions..... | 813 85 |
| Repairing dock..... | 633 62 |
| Pile driving..... | 380 00 |
| Printing and advertising.... | 19 37 |
| Railroad and care fare | 86 88 |
| Repairing boat..... | 21 50 |
| Repairing tools..... | 5 65 |
| Tug service..... | 66 00 |
| Diving | 200 00 |
| Tools and repairing..... | 35 77 |
| Sounding-rod | 5 72 |
| Sundries..... | 35 66 |

86,798 12

Acc't Fullerton Avenue Conduit.

Paid for—

| | |
|--|-------------|
| Salaries of engineers, firemen, etc., and labor..... | \$ 8,293 07 |
| Oil..... | 385 02 |
| Coal..... | 4,634 74 |
| Gas..... | 317 40 |
| Machine work..... | 115 77 |
| Boiler cleaner..... | 150 00 |
| Dredging..... | 1,434 55 |
| Diving | 35 00 |
| Potatoes..... | 38 20 |
| Coke..... | 24 80 |
| Sewerage..... | 26 85 |
| Pipe fitting..... | 12 64 |
| Teaming..... | 3 50 |
| Brooms and soap..... | 9 20 |
| Gaskets and packing..... | 18 63 |
| Rubber boots..... | 7 50 |
| Fire brick and clay..... | 18 20 |

Carried forward,

\$15,525 07 \$1,056,904 10

| | | |
|--------------------|-------------|----------------|
| Brought forward, | \$15,525 07 | \$1,056,904 10 |
| Hardware | 21 06 | |
| Globe valves | 2 34 | |
| Hose | 19 52 | |
| Wood | 33 48 | |
| Sundries | 19 16 | |
| | <hr/> | 15,620 63 |

Acc't Canal Pumping Works.

Paid for—

| | | |
|---|-------------|----------------|
| Salaries of engineers, firemen, etc., and labor | \$35,939 63 | |
| Paint and oil | 1,116 11 | |
| Coal | 28,876 61 | |
| Lumber | 2,708 45 | |
| Iron and machine work | 507 96 | |
| Pile driving | 2,172 80 | |
| Dredging | 1,278 00 | |
| Steam fitting | 392 15 | |
| Masonry | 475 00 | |
| Smokestack | 65 00 | |
| Boiler compound | 78 40 | |
| Car fare | 29 54 | |
| Tools and repairing | 189 16 | |
| Screens | 4 00 | |
| Advertising | 20 50 | |
| Roofing | 535 00 | |
| Hardware | 340 53 | |
| Use of derrick | 211 00 | |
| Sand | 17 50 | |
| Castings | 204 11 | |
| Cement and lime | 52 35 | |
| Bolts and washers | 16 74 | |
| Pipe covering | 268 70 | |
| Fire brick | 151 75 | |
| Carpenter work | 637 05 | |
| Wheelbarrows | 66 00 | |
| Use of scow | 853 96 | |
| Hose, packing and gaskets .. | 139 16 | |
| Waste | 106 34 | |
| Lamps and globes | 39 18 | |
| | <hr/> | |
| Carried forward, | \$77,192 63 | \$1,072,524 73 |

| | | |
|-----------------------------|-------------|----------------|
| Brought forward, | \$77,192 63 | \$1,072,524 73 |
| Doors and sash..... | 11 20 | |
| Valves..... | 5 10 | |
| Teaming..... | 19 85 | |
| Brooms and brushes..... | 28 20 | |
| Lubricators..... | 20 25 | |
| Ice..... | 43 04 | |
| Soap, lye and sundries..... | 77 61 | |
| Diving..... | 35 00 | |
| | <hr/> | 77,432 88 |

*Acc't Western Avenue (N.)
Bridge.*

Paid for—

| | | |
|---|-------------|-----------|
| Engineering, draughting and labor..... | \$ 2,080 93 | |
| Dredging..... | 3,173 04 | |
| Account sub-structure..... | 2,975 00 | |
| Account super-structure.... | 2,975 00 | |
| Blue prints..... | 18 88 | |
| Advertising..... | 20 25 | |
| Inspecting lumber..... | 7 50 | |
| | <hr/> | 11,250 60 |

Acc't Webster Avenue Bridge.

Paid for—

| | | |
|--------------------------|-------------|----------|
| Labor..... | \$ 1,039 92 | |
| Pier and protection..... | 7,922 70 | |
| Bolts and washers..... | 3 63 | |
| One stove..... | 4 50 | |
| | <hr/> | 8,970 75 |

Acc't Madison Street Bridge.

Paid for—

| | | |
|---|-------------|----------------|
| Engineering, draughting and labor..... | \$ 2,084 82 | |
| Land damages..... | 34,173 65 | |
| Account sub-structure..... | 1,830 79 | |
| Account super-structure.... | 29,278 11 | |
| Account plate girder span... | 3,351 70 | |
| | <hr/> | |
| Carried forward, | \$70,719 07 | \$1,170,178 96 |

| | | |
|------------------|-------------|----------------|
| Brought forward, | \$70,719 07 | \$1,170,178 96 |
| Coal | 1 50 | |
| Blue prints..... | 9 96 | |
| Iron-work | 25 40 | |
| Anchorage | 66 93 | |
| | <hr/> | 70,822 86 |

*Acc't Washington Street
Bridge.*

Paid for—

| | | |
|---|-------------|-----------|
| Engineering, draughting and labor..... | \$ 2,595 22 | |
| Account center and end piers | 40,029 00 | |
| On sub-structure of viaduct. | 9,567 20 | |
| Work on entrance to tunnel (foot passage)..... | 1,207 10 | |
| Pile driving..... | 695 00 | |
| Iron work. | 126 00 | |
| Advertising and printing.... | 55 20 | |
| Iron pipe..... | 49 40 | |
| Hardware..... | 8 67 | |
| Repairing dock..... | 100 00 | |
| | <hr/> | 54,432 79 |

Acc't Taylor Street Bridge.

Paid for—

| | | |
|--|-------------|----------|
| Engineering, draughting and labor | \$ 2,228 85 | |
| Account sub-structure..... | 5,144 31 | |
| Iron work..... | 2,191 50 | |
| Lumber | 274 51 | |
| Advertising and blue prints.. | 56 16 | |
| Use of rollers..... | 15 00 | |
| Car fare..... | 1 60 | |
| | <hr/> | 9,911 93 |

Acc't Weed Street Bridge.

Paid for—

| | | |
|----------------------------|----------|--------|
| Advertising. | \$ 12 00 | |
| Engineering and draughting | 212 50 | |
| | <hr/> | 224 50 |

| | | |
|------------------|-------|----------------|
| Carried forward, | <hr/> | \$1,305,571 04 |
|------------------|-------|----------------|

Brought forward, \$1,305,571 04
Acc't Canal Street Bridge.

| | | |
|---|----|----------|
| Paid for— | | |
| Engineering, draughting and labor | \$ | 1,077 25 |
| Blue prints | | 18 05 |
| Dredging | | 2,493 95 |
| Account sub-structure | | 5,145 33 |
| | | 8,734 58 |

Acc't Ninety-fifth Street Bridge.

| | | |
|---|----|----------|
| Paid for— | | |
| Advertising | \$ | 20 25 |
| Engineering, draughting and labor | | 859 50 |
| Dredging | | 1,202 25 |
| Inspecting lumber | | 98 00 |
| | | 2,180 00 |

Acc't Thirty-fifth Street Bridge.

| | | |
|-------------------|----|-------|
| Paid for— | | |
| Advertising | \$ | 31 50 |
| Labor | | 5 33 |
| | | 36 83 |

Acc't Ogden Ditch Dam.

| | | |
|----------------------------|----|----------|
| Paid for— | | |
| Labor | \$ | 1,048 50 |
| Services of watchman | | 40 00 |
| Hardware | | 16 14 |
| | | 1,104 64 |

Acc't Vessel Dispatcher.

| | | |
|---|----|----------|
| Paid for— | | |
| Salary of vessel dispatcher and assistant | \$ | 2,002 50 |
| Printing and stationery | | 151 45 |
| Car fare | | 75 |
| | | 2,154 70 |

Carried forward, \$1,319,781 79

| | | |
|--|----|----------------|
| Brought forward, | | \$1,319,781 79 |
| <i>Acc't City Engineer's Office Expense.</i> | | |
| Paid for— | | |
| Books, printing and stationery..... | \$ | 457 71 |
| Railroad and car fare | | 458 04 |
| Postage | | 42 10 |
| Office fittings and furniture. | | 258 26 |
| Tape 'lines and repairing instruments | | 31 85 |
| Typewriters' supplies | | 8 00 |
| Maps | | 16 00 |
| Clocks | | 13 50 |
| Glass | | 6 58 |
| Horse keeping and shoeing. | | 59 00 |
| Lumber | | 16 00 |
| Sundries | | 111 43 |
| | \$ | 1,478 47 |
| Charged annexed territory.. | | 25 04 |
| Charged appropriation fund. | | 1,453 43 |

Acc't Map Office Expense.

| | | |
|---------------------------|----|--------|
| Paid for— | | |
| Drawing material..... | \$ | 435 04 |
| Maps and plats..... | | 115 00 |
| Binding atlases..... | | 196 50 |
| City directory..... | | 6 00 |
| Postage and car fare..... | | 6 43 |
| Mounting map | | 3 00 |
| Black prints | | 3 70 |
| | | 765 67 |

| | |
|------------------|----------------|
| Carried forward, | \$1,322,000 89 |
|------------------|----------------|

| | | |
|--|----|----------------|
| Brought forward, | | \$1,322,000 89 |
| <i>Acc't Appropriation Funds</i> | | |
| <i>Proportion of Commissioner's Office Expenses.</i> | | |
| Paid for— | | |
| Books, printing and stationery..... | \$ | 1,031 66 |
| Railroad and car fare..... | | 448 80 |
| Postage..... | | 83 05 |
| Account annual report..... | | 1,193 89 |
| Tin boxes..... | | 13 76 |
| Binding papers..... | | 17 75 |
| Cyclostyle..... | | 17 50 |
| Newspapers..... | | 55 04 |
| Sundries..... | | 12 60 |
| Advertising..... | | 10 94 |
| | | <hr/> 2,884 99 |

*Acc't Street Department
Office Expense.*

| | | |
|-------------------------------------|----|--------|
| Paid for— | | |
| Books, printing and stationery..... | \$ | 544 96 |
| Railroad and car fare..... | | 121 80 |
| Maps | | 19 00 |
| Three city directories..... | | 18 00 |
| Freight..... | | 11 30 |
| Livery..... | | 3 00 |
| Postage..... | | 158 27 |
| Repairing vault door..... | | 5 00 |
| Plumbing..... | | 2 75 |
| Repairing instruments..... | | 18 65 |
| Miscellaneous supplies..... | | 62 62 |
| | | <hr/> |
| | \$ | 965 35 |
| Charged annexed territory.. | | 29 38 |
| | | <hr/> |
| Charged appropriation fund. | | 935 97 |

| | | |
|------------------|--|----------------------|
| Carried forward, | | <hr/> \$1,325,821 85 |
|------------------|--|----------------------|

Brought forward, \$1,325,821 85

Acc't Salaries.

Paid—

| | | |
|--|---------------|------------|
| Employes of street department..... | \$ 15,164 07 | |
| Employes of City Engineer's department..... | 11,177 76 | |
| Employes of map department..... | 14,281 62 | |
| One-third salaries of Commissioner, Secretary, Book-keeper and others..... | 9,203 33 | |
| Bridge tenders | 80,418 48 | |
| | <hr/> | |
| | \$ 130,240 26 | |
| Charged annexed territory.. | 2,393 91 | |
| | <hr/> | |
| Charged appropriation fund. | | 127,846 35 |

Acc't Special Assessments.

Paid for—

| | | |
|---|--------------|----------------|
| Books, printing and stationery..... | \$ 1,782 77 | |
| Legal expenses..... | 18,844 60 | |
| Expert services..... | 17,938 00 | |
| Salaries of clerks, engineers, rodmen, etc..... | 113,315 91 | |
| Advertising..... | 16,298 59 | |
| Railroad and car fare..... | 692 93 | |
| Stenographer's services..... | 2,644 10 | |
| Postage..... | 1,616 72 | |
| Commissioners making assessments..... | 16,317 50 | |
| Collecting assessments | 44,147 45 | |
| Maps..... | 342 77 | |
| Rebate..... | 50 71 | |
| Teaming..... | 50 00 | |
| Laying sidewalk..... | 15 81 | |
| City directory..... | 6 00 | |
| Re-setting curb..... | 33 50 | |
| Use horse and buggy..... | 37 00 | |
| | <hr/> | |
| Carried forward, | \$234,134 36 | \$1,453,668 20 |

| | | |
|-----------------------------|--------------|----------------|
| Brought forward, | \$234,134 36 | \$1,453,668 20 |
| Binding documents..... | 51 00 | |
| Real Estate Journal..... | 5 00 | |
| Repairing instruments..... | 33 00 | |
| Hardware..... | 6 10 | |
| Repairing steam roller..... | 284 24 | |
| Coal and oil,..... | 345 95 | |
| Stone | 10 00 | |
| Water pipe..... | 39 50 | |
| Sundries..... | 15 50 | |
| | <hr/> | |
| | \$234,924 65 | |
| Charged annexed territory.. | 5,404 48 | |
| | <hr/> | |
| Charged appropriation fund. | | 229,520 17 |

Acc't Street Lamps.

January to April.

Paid for--

| | | |
|-----------------------------|-------------|----------------|
| Labor..... | \$ 4,371 60 | |
| Glass..... | 2,170 48 | |
| Hardware | 445 13 | |
| Lamp posts..... | 371 33 | |
| Boulevard lamps..... | 205 00 | |
| Paint and oil..... | 169 10 | |
| Solder..... | 121 08 | |
| Tin..... | 154 50 | |
| Lamp fixtures..... | 362 75 | |
| Tools..... | 27 50 | |
| Horse keep..... | 56 12 | |
| Castings..... | 13 53 | |
| Ventilators..... | 22 80 | |
| Brooms and soap..... | 8 25 | |
| Sundries..... | 24 60 | |
| | <hr/> | |
| | \$ 8,523 77 | |
| Charged annexed territory.. | 278 00 | |
| | <hr/> | |
| Charged appropriation fund. | | 8,245 77 |
| | | <hr/> |
| Carried forward, | | \$1,691,494 14 |

Brought forward,

\$1,691,434.14

Acc't Gasoline Lamps.

January to April.

Paid for—

| | |
|-----------------------------|--------------|
| Labor..... | \$ 10,562 55 |
| Gasoline..... | 8,963 66 |
| Glass..... | 715 88 |
| Paint, oil and alcohol..... | 72 74 |
| Hardware | 15 84 |
| Chimneys..... | 46 20 |
| Ladders..... | 71 00 |
| Oil cans..... | 36 55 |
| Tin..... | 178 75 |
| Solder..... | 30 12 |
| Castings..... | 33 92 |
| Tools | 43 18 |
| Lamp irons..... | 100 00 |
| Lamp founts..... | 44 40 |
| Wicking..... | 20 50 |
| Iron clamps..... | 28 00 |
| Harness and feed bag..... | 29 40 |
| Bolts..... | 10 48 |
| Teaming..... | 68 50 |
| Lumber | 13 00 |
| Coal..... | 6 00 |
| Corks..... | 8 25 |
| Sundries..... | 19 19 |

21,116 11
Acc't Electric Light Plant.

January to April.

Paid for—

| | |
|---------------------|-------------|
| Labor..... | \$ 4,619 95 |
| Brick and clay..... | 3,817 52 |
| Steam fitting..... | 437 24 |
| Stokers | 3,600 00 |
| Masonry..... | 2,815 90 |
| Plumbing..... | 380 66 |
| Sewer pipe | 228 36 |
| Roofing | 500 00 |
| Lime | 109 20 |

Carried forward,

\$17,467 95

\$1,712,552 25

| | | |
|---------------------------|-------------|----------------|
| Brought forward, | \$17,467 95 | \$1,712,552 25 |
| Lumber | 538 03 | |
| Stone | 39 65 | |
| Sand..... | 66 50 | |
| Inspecting machinery..... | 250 00 | |
| Hardware..... | 15 89 | |
| Evaporating test..... | 15 00 | |
| Blue prints..... | 14 76 | |
| Car fare..... | 19 29 | |
| | <hr/> | 17,467 95 |

Acc't Street Permits.

| | | |
|-----------------------------|--------------|-----------|
| Paid for— | | |
| Labor.... | \$ 14,788 87 | |
| Paving | 4,792 14 | |
| Railroad and car fare..... | 349 00 | |
| Rebates..... | 127 75 | |
| Blank books..... | 8 87 | |
| | <hr/> | |
| | \$ 20,066 63 | |
| Charged annexed territory.. | 200 00 | |
| | <hr/> | |
| Charged appropriation fund. | | 19,866 63 |

Acc't House Moving Permits.

| | | |
|------------------------------|-----------|--------|
| Paid for— | | |
| Clerical services..... | \$ 750 00 | |
| Postage..... | 1 75 | |
| Printing and stationery..... | 45 00 | |
| | <hr/> | |
| | | 796 75 |

Acc't Permit Depositors.

| | | |
|-----------------------------|--------------|-----------|
| Paid— | | |
| Rebates to depositors..... | \$ 28,810 18 | |
| Charged annexed territory.. | 827 00 | |
| | <hr/> | |
| Charged appropriation fund. | | 27,983 18 |

Acc't Public Benefits.

| | | |
|--|--|----------------|
| Paid for— | | |
| City's portion of improving street intersections..... | | 408,326 77 |
| | | <hr/> |
| Carried forward, | | \$2,186,993 53 |

Brought forward, \$2,186,993 53

Other Expenditures.

| | | |
|---|-----------|-----------------------------|
| Paid out on deposits made by— | | |
| Thomas Byrne, inspection.. | \$ 200 00 | |
| Simons & Gordon, paving and inspecting..... | 1,924 17 | |
| Consumers Pure Ice Company, inspecting..... | 686 00 | |
| Rapid Transit & Bridge Construction Company, inspecting..... | 966 66 | |
| P., Ft. W. & C. R. R. Co., for improving Stewart avenue. | 30,000 00 | |
| C., M. & N. R. R. Co., for improving Archer avenue. | 10,239 62 | |
| E. Heldmeier and others for improving Hills street.... | 1,050 00 | |
| Sundry persons, inspecting.. | 157 50 | |
| King Iron Bridge & Manufacturing Company, balance on Twelfth street viaduct | 665 50 | |
| | <hr/> | 45,889 45 |
| Total expenditures..... | | <hr/> <u>\$2,232,882 98</u> |

HYDE PARK FUND.

RECEIPTS.

From January 1 to April 30, 1890.

| | |
|------------------------------------|-------------|
| Current water rents, assessed..... | \$ 9,975 77 |
| Current water rents, meters..... | 13,714 65 |
| Water service cocks..... | 1,412 20 |
| Meters and private work..... | 461 00 |
| Hyde Park pumping works..... | 4 70 |
| House drains..... | 1,996 45 |
| Sewerage, private work..... | 32 00 |
| Improved streets..... | 2,201 30 |
| Unimproved streets..... | 21 10 |
| | <hr/> |
| Carried forward, | \$29,819 17 |

| | | | |
|--------------------------------|----|--------|-------|
| Brought forward, | \$ | 29,819 | 17 |
| Permit depositors..... | | 822 | 00 |
| House moving permits.... | | 158 | 00 |
| Street permits..... | | 4 | 00 |
| Transfer from Cicero fund..... | | 2,178 | 31 |
| From Comptroller..... | | 44,380 | 32 |
| | | <hr/> | <hr/> |
| | \$ | 77,361 | 80 |

EXPENDITURES.

From January 1 to April 30, 1890.

| | | | |
|--|----|--------|-------|
| Water pipe extension..... | \$ | 18,402 | 40 |
| Water Works repairs..... | | 6,918 | 03 |
| Hyde Park pumping works..... | | 12,304 | 06 |
| Water Office expenses and salaries..... | | 7,109 | 92 |
| Water service cocks..... | | 615 | 66 |
| Water fund, miscellaneous expenses..... | | 875 | 00 |
| Meters and private work..... | | 63 | 37 |
| Water proportional office expenses. | | 181 | 90 |
| Cleaning sewers | | 3,199 | 39 |
| Repairing sewers..... | | 253 | 34 |
| House drains | | 1,663 | 50 |
| Sewerage office expenses and salaries..... | | 1,034 | 39 |
| Sewers, South Division..... | | 231 | 35 |
| Catch-basins... .. | | 147 | 94 |
| Cement | | 6 | 25 |
| Sewer pipe | | 8 | 83 |
| Sewerage stock..... | | 7 | 80 |
| Improved streets | | 3,446 | 62 |
| Unimproved streets..... | | 12,532 | 18 |
| Special assessment expenses..... | | 1,916 | 40 |
| Sidewalks, general repairs..... | | 1,534 | 36 |
| Sidewalks, intersections..... | | 565 | 00 |
| Street permits..... | | 100 | 00 |
| Permit depositors..... | | 552 | 00 |
| Bridge repairs | | 1,642 | 91 |
| Gravel | | 105 | 00 |
| Salaries | | 1,158 | 33 |
| Public buildings..... | | 68 | 45 |
| City Engineer's office expenses | | 25 | 04 |
| Street department office expenses..... | | 23 | 40 |
| Bridge tender's salary..... | | 668 | 98 |
| | | <hr/> | <hr/> |
| | \$ | 77,361 | 80 |

TOWN OF LAKE FUND.

RECEIPTS.

From January 1 to April 30, 1890.

| | | | |
|------------------------------------|----|-----------|--------------|
| Current water rents, assessed..... | \$ | 9,891 71 | |
| Current water rents, meters..... | | 13,979 55 | |
| Water service cocks... .. | | 1,539 70 | |
| Meters and private work..... | | 3 00 | |
| House drains | | 2,060 00 | |
| Permit depositors | | 5 00 | |
| House moving permits..... | | 87 00 | |
| Street permits..... | | 12 50 | |
| From Comptroller..... | | 44,069 52 | |
| | | <hr/> | \$ 71,647 98 |

EXPENDITURES.

From January 1 to April 30, 1890.

| | | |
|--|----|-----------|
| Water pipe extension..... | \$ | 2,112 35 |
| Water Works repairs..... | | 5,875 90 |
| Town Lake pumping works..... | | 10,314 06 |
| Water fund, miscellaneous expenses | | 117 53 |
| Water service cocks..... | | 939 32 |
| Water Office expenses and salaries..... | | 8,544 25 |
| Meters and private work..... | | 483 49 |
| Water pipe and castings..... | | 158 55 |
| M. Moriarity, petty cash..... | | 50 00 |
| Cleaning sewers..... | | 4,217 62 |
| Repairing sewers | | 1,151 37 |
| Intersections..... | | 663 00 |
| House drains..... | | 2,090 90 |
| Sewerage office expenses and salaries..... | | 911 72 |
| Wooden covers..... | | 448 50 |
| Catch-basins..... | | 60 65 |
| Iron covers..... | | 225 08 |
| Sewer pipe..... | | 42 60 |
| Sewers South Division | | 48 90 |
| Cement..... | | 25 00 |

| | | |
|------------------|----|-----------|
| Carried forward, | \$ | 38,480 79 |
|------------------|----|-----------|

DEPARTMENT OF PUBLIC WORKS.

| | |
|---|--------------|
| Brought forward, | \$ 38,480 79 |
| Sewerage proportional office expenses | 10 00 |
| Sewerage stock | 38 00 |
| Sewer bricks | 99 00 |
| Unimproved streets | 24,236 91 |
| Sidewalks, general repairs | 3,130 37 |
| Sidewalks, intersections | 1,957 87 |
| Special assessment expenses | 2,328 08 |
| Salaries | 358 33 |
| Street permits | 100 00 |
| Public buildings | 102 05 |
| Bridge repairs | 751 58 |
| Lumber | 55 00 |
| | <hr/> |
| | \$ 71,647 98 |

LAKE VIEW FUND.

RECEIPTS.

From January 1 to April 30, 1890.

| | |
|------------------------------------|--------------|
| Current water rents, assessed | \$ 11,919 87 |
| Current water rents, meters | 1,354 34 |
| Water service cocks | 2,113 50 |
| Lake View pumping works | 50 94 |
| House drains | 2,720 00 |
| House-moving permits | 48 00 |
| Public buildings | 14 40 |
| Street lamps | 7 80 |
| From Comptroller | \$ 30,389 38 |
| | <hr/> |
| | \$ 48,618 23 |

EXPENDITURES.

From January 1 to April 30, 1890.

| | |
|---|--------------|
| Water pipe extension | \$ 1,589 41 |
| Water Works repairs | 2,512 81 |
| Lake View water tunnel | 21,611 24 |
| Water Office expense and salaries | 2,937 88 |
| Miscellaneous expense account | 75 00 |
| Lake View pumping works | 5,686 68 |
| | <hr/> |
| Carried forward, | \$ 34,413 02 |

BOOK-KEEPER'S STATEMENT.

401

| | | | |
|--|----|-----------|--------------|
| Brought forward, | \$ | 34,413 02 | |
| Meters and private work..... | | 92 25 | |
| Water service cocks..... | | 286 32 | |
| Cleaning sewers..... | | 3,720 24 | |
| Repairing sewers | | 185 53 | |
| Wooden covers..... | | 116 45 | |
| House drains..... | | 1,081 50 | |
| Sewer office expense and salaries..... | | 907 80 | |
| Cement | | 26 25 | |
| Iron covers..... | | 429 13 | |
| Brick | | 30 00 | |
| Sewerage stock..... | | 3 73 | |
| Sewers, North Division..... | | 160 09 | |
| Intersections | | 189 75 | |
| Unimproved streets..... | | 2,021 24 | |
| Improved streets..... | | 1,584 66 | |
| Special assessment expense..... | | 1,160 00 | |
| Sidewalks, general repairs | | 1,250 22 | |
| Sidewalks, intersections..... | | 460 00 | |
| Salaries | | 208 27 | |
| Street lamps..... | | 278 00 | |
| Public buildings | | 7 80 | |
| Street department office expense..... | | 5 98 | |
| | | | \$ 48,618 23 |

CICERO FUND.

RECEIPTS.

From January 1 to April 30, 1890.

| | |
|-----------------------------------|------------|
| Current water rents assessed..... | \$2,278 31 |
|-----------------------------------|------------|

EXPENDITURES.

From January 1 to April 30, 1890.

| | |
|---------------------------------|------------|
| Water Office expense..... | \$ 25 00 |
| Unimproved streets..... | 75 00 |
| Transfer to Hyde Park Fund..... | 2,178 31 |
| | \$2,278 31 |

JEFFERSON FUND.

RECEIPTS.

From January 1 to April 30, 1890.

| | | | |
|---------------------------|----|-----------|-------------|
| Water service cocks..... | \$ | 215 00 | |
| House-moving permits..... | | 12 00 | |
| From Comptroller..... | | 13,367 18 | |
| | | <hr/> | \$13,594 18 |

EXPENDITURES.

From January 1 to April 30, 1890.

| | | | |
|------------------------------------|----|-----------|-------------|
| Water Office expense..... | \$ | 4 00 | |
| Water pipe extension..... | | 261 53 | |
| Miscellaneous expense account..... | | 39 05 | |
| Unimproved streets..... | | 10,819 79 | |
| Sidewalks, intersections..... | | 840 00 | |
| Sidewalks, general repairs..... | | 1,032 25 | |
| Lumber..... | | 597 56 | |
| | | <hr/> | \$13,594 18 |

TRIAL BALANCE.

LEDGER, DEPARTMENT PUBLIC WORKS, CHICAGO,

DECEMBER 31, 1890.

| | <i>Dr.</i> | <i>Cr.</i> |
|--|------------------|-----------------|
| Appropriation Fund..... | \$ 240,448 21 | |
| Inspection accounts..... | | \$ 1,042 50 |
| C., M. & N. R. R. Co..... | | 376 44 |
| Rapid Transit & Bridge Construction Co | | 33 34 |
| Western Paving & Supply Co..... | | 200 00 |
| Simmons & Gordon..... | | 75 83 |
| Public benefits..... | 1,879 56 | |
| Special assessment expense..... | 2,749 27 | |
| Canal pumping works..... | | 51,187 63 |
| Weed street bridge..... | | 8,075 50 |
| Ninety-fifth street bridge.... | 2,180 00 | |
| Thirty-fifth street bridge..... | 36 83 | |
| Permit depositors | | 12,489 89 |
| R. A. Smith, Cashier..... | 1,500 00 | |
| Deficiency in collection of taxes..... | | 1,928 87 |
| Taylor street bridge..... | | 8,222 34 |
| Canal street bridge..... | | 15,715 42 |
| Webster avenue bridge..... | | 4,047 67 |
| Western avenue (N.) bridge..... | 2,109 95 | |
| Madison street bridge..... | | 113,311 18 |
| Washington street bridge..... | | 24,197 21 |
| Morgue | | 10,000 00 |
| Sewerage fund..... | 133,171 96 | |
| Annexed territory..... | | 2,614,224 75 |
| Sewer construction by special deposits and assessments..... | | 599,900 34 |
| Sewerage surplus account..... | | 5,500 00 |
| Sewers, North Division..... | 2,161,397 16 | |
| Sewers, South Division..... | 4,248,277 59 | |
| Sewers, West Division..... | 4,555,995 23 | |
| Sewer pipe..... | 1,496 36 | |
| Carried forward, | \$ 11,351,242 12 | \$ 3,470,528 91 |

| | | |
|---|------------------|------------------|
| Brought forward, | \$ 11,351,242 12 | \$ 3,470,528 91 |
| Sewer brick | 111 98 | |
| Wooden covers..... | 4,856 81 | |
| Iron covers..... | 5,044 15 | |
| Cement..... | 15 86 | |
| Sand..... | 90 00 | |
| Sewerage, private work..... | | 500 00 |
| Sewerage loan bonds, 4 per cent..... | | 845,000 00 |
| Sewerage loan bonds, 7 per cent..... | | 1,288,000 00 |
| Sewerage loan bonds, 4½ per cent.... | | 489,500 00 |
| Sewerage loan bonds, canceled..... | | 377,500 00 |
| Sewerage fund, general taxes..... | | 5,037,366 74 |
| General fund..... | 382 55 | |
| Suspense account..... | 111,548 77 | |
| Sewerage maintenance account..... | 50,492 16 | |
| Sewerage stock account | 8,000 00 | |
| Galena & Chicago Union R. R. Co.... | | 382 55 |
| Chicago Malleable Iron Co..... | | 900 00 |
| Board of Education..... | | 4,677 50 |
| George A. Seaverns..... | | 75 00 |
| Presbyterian Theological Seminary.... | | 1,397 50 |
| Chicago Gas Light & Coke Co..... | | 330 00 |
| S. W. Roth | | 500 00 |
| John Tyrrell..... | | 500 00 |
| R. Schlosser..... | | 331 00 |
| Sidney A. Kent..... | | 493 00 |
| Cook County Building & Loan Association, Lake View..... | | 600 00 |
| J. L. Cochran..... | | 1,320 00 |
| Oscar Charles..... | | 1,360 00 |
| Daniel F. Bacon..... | | 418 00 |
| Eben Ryder..... | | 105 00 |
| Graceland Cemetery Co..... | | 924 00 |
| Maurice J. Healey..... | | 607 70 |
| Thomas J. Divan..... | | 150 00 |
| Vopicka & Kubin..... | | 213 00 |
| Carried forward, | \$ 11,531,784 40 | \$ 11,524,179 90 |

BOOK-KEEPER'S STATEMENT.

405

| | | |
|--|------------------|------------------|
| Brought forward, | \$ 11,531,784 40 | \$ 11,524,179 00 |
| Hardin, Hoffland & Carson..... | | 592 00 |
| John N. Young..... | | 1,840 00 |
| A. J. Drexel | | 1,348 00 |
| David Bain..... | | 66 50 |
| John E. Crate..... | | 66 50 |
| Mrs. E. L. Young..... | | 66 50 |
| J. N. Cunning..... | | 470 00 |
| Union Mutual Life Insurance Co..... | | 2,950 00 |
| Ole Johnson | | 130 00 |
| Baird & Bradley..... | | 75 00 |
| Water Fund..... | 9,829 07 | |
| Water Works..... | 16,902,190 28 | |
| Water Works income..... | | 25,193,724 15 |
| Water Fund general taxes..... | | 2,713,878 53 |
| Annexed territory..... | | 197,875 48 |
| Water loan bonds, 6 per cent | | 132,000 00 |
| Water loan bonds, 7 per cent..... | | 2,847,000 00 |
| Water loan bonds, 4 per cent..... | | 150,000 00 |
| Water loan bonds, $3\frac{5}{8}$ per cent..... | | 333,000 00 |
| Water loan bonds, $3\frac{1}{2}$ per cent..... | | 493,000 00 |
| Water loan bonds, canceled..... | | 859,000 00 |
| Hyde Park bonds, 5 per cent..... | | 50,000 00 |
| Hyde Park bonds, 7 per cent..... | | 384,000 00 |
| Town of Lake bonds, 5 per cent..... | | 179,900 00 |
| Town of Lake bonds, 7 per cent..... | | 222,000 00 |
| Lake View bonds, 4 per cent..... | | 50,000 00 |
| Lake View bonds, 5 per cent..... | | 23,000 00 |
| Lake View bonds, 7 per cent..... | | 75,000 00 |
| Water loan interest | 7,012,759 34 | |
| Water Works expense and repairs..... | 9,865,160 97 | |
| American Exchange National Bank, N. Y | 133,230 94 | |
| M. Moriarty, clerk..... | 100 00 | |
| J. W. Lyons, cashier..... | 1,691 88 | |
| W. S. Maher, clerk..... | 50 00 | |
| Meter department, stock | 13,765 30 | |
| Carried forward, | \$ 45,470,562 13 | \$ 45,435,162 56 |

| | | |
|--------------------------------------|------------------|------------------|
| Brought forward, | \$ 45,470,562 18 | \$ 45,435,162 56 |
| Water Works shop, stock..... | 4,659 60 | |
| Tapping department, stock..... | 4,879 26 | |
| Water pipe and special castings..... | 103,694 47 | |
| Brick account..... | 40 00 | |
| Sewer pipe account..... | 209 30 | |
| Lead account..... | 1,908 00 | |
| Michigan avenue city property..... | 725 38 | |
| Cement account..... | 118 75 | |
| Water Works shop..... | | 492 42 |
| Hydrant wrenches..... | | 1,390 00 |
| Ogden, Sheldon & Co..... | | 610 68 |
| John Tyrrell..... | | 150 00 |
| West Chicago Park Commissioners.... | | 1,130 57 |
| S. H. Wheeler..... | | 250 32 |
| C. J. L. Meyer..... | | 200 00 |
| William D. Kerfoot & Co..... | | 4,232 94 |
| Julia F. Porter..... | | 185 90 |
| Adele F. Adams..... | | 638 10 |
| Conrad Seipp..... | | 431 00 |
| Baird & Bradley..... | | 2,568 26 |
| Little Sisters of the Poor..... | | 500 00 |
| J. U. Borden.. .. | | 1,179 28 |
| C. & G. W. R. R. Co..... | | 882 00 |
| Lamsen Bros..... | | 682 83 |
| Estate C. H. McCormick..... | | 60 00 |
| S. E. Gross..... | | 2,146 85 |
| J. Stiles | | 1,240 00 |
| J. K. Cochran..... | | 646 42 |
| Barber Asphalt Paving Co..... | | 200 00 |
| L. B. Otis..... | | 499 17 |
| Augustus Jacobson..... | | 325 00 |
| B. F. Weber..... | | 2,936 06 |
| J. L. Lombard..... | | 966 00 |
| J. L. Cochran..... | | 6,098 72 |
| A. J. Drexel..... | | 1,101 22 |
| Carried forward, | \$ 45,586,796 94 | \$ 45,466,906 30 |

BOOK-KEEPER'S STATEMENT.

407

| | | |
|-------------------------------------|------------------|------------------|
| Brought forward, | \$ 45,586,796 94 | \$ 45,466,906 30 |
| Crocker & Sweet..... | | 1,353 85 |
| C. L. Hammond..... | | 4,419 44 |
| Union Mutual Life Insurance Co..... | | 700 00 |
| Dewey & Cunningham | | 7,146 81 |
| Travelers Insurance Co..... | | 500 00 |
| J. N. Young..... | | 442 85 |
| Hardin, Hoffland & Carson..... | | 442 85 |
| W. H. Colvin..... | | 761 26 |
| Helen Culver..... | | 1,178 10 |
| C. B. Shedd..... | | 747 32 |
| James Barrell..... | | 653 90 |
| Benjamin Allen..... | | 453 65 |
| Graceland Cemetery Co..... | | 4,976 75 |
| George Cleveland..... | | 1,785 61 |
| B. F. Cronkrite..... | | 812 62 |
| White & Coleman..... | | 7,720 87 |
| John M. Brown..... | | 524 94 |
| J. W. Chisholm..... | | 372 34 |
| Bryan Lathrop..... | | 157 82 |
| George D. Holton..... | | 78 88 |
| J. H. Snitzler..... | | 78 88 |
| R. W. Bridge..... | | 105 71 |
| C. & W. I. R. R. Co..... | | 600 00 |
| Calumet and Chicago Land & Dock Co. | | 4,887 00 |
| D. S. Place..... | | 7,164 35 |
| E. A. Cummings & Co..... | | 22,662 84 |
| George H. Rozet..... | | 534 27 |
| James R. Mann..... | | 2,009 94 |
| F. J. Bennett & Co..... | | 2,440 00 |
| A. B. McChestney..... | | 283 00 |
| Lincoln Brook..... | | 497 00 |
| James Rood, Jr..... | | 1,314 53 |
| Potwin & Morgan..... | | 778 09 |
| Bogue & Hoyt | | 21,506 44 |
| Eggleston, Mallette & Brownell..... | | 5,849 43 |
| Carried forward, | \$ 45,586,796 94 | \$ 45,572,867 64 |

| | | |
|------------------------------|------------------------|------------------------|
| Brought forward, | \$ 45,586,796 94 | \$ 45,572,867 64 |
| Axel Chytraus | | 1,234 40 |
| C. J. Ford | | 1,175 49 |
| Wm. V. Jacobs & Co..... | | 5,099 51 |
| James Darlow..... | | 350 00 |
| J. H. Ludden..... | | 83 33 |
| B. Halley | | 166 67 |
| A. J. Toolen..... | | 125 00 |
| F. H. Clark..... | | 125 00 |
| C. B. Parson..... | | 1,289 75 |
| C. S. Schoenman..... | | 800 00 |
| Ed. Mendel. | | 435 74 |
| C. & N.-W. Ry. Co | | 131 36 |
| Clara F. Bass..... | | 1,195 80 |
| Board of Education..... | | 1,592 56 |
| J. Q. Adams | | 124 69 |
| City Hall Fund..... | 3,463 29 | |
| City Hall appropriation..... | | 1,715,956 10 |
| Board of Education..... | | 3,397 18 |
| City Hall (cost of)..... | 1,716,389 99 | |
| | <u>\$47,306,650 22</u> | <u>\$47,306,650 22</u> |

Respectfully submitted,

F. C. MEYER,

Book-keeper.

APPENDIX



INTRODUCTION.

Whatever of historic value the record in the following pages possesses consists in this, that it is derived from authentic sources, largely from Andreas' "History of Chicago," and much of it from still living witnesses of the extraordinary growth in half a hundred years of a community from a frontier settlement to a city of over a million inhabitants. Such a growth as that of Chicago is unparalleled in the history of civilization. In time to come, each and every detail of the beginning of this phenomenal development will be of interest to future generations who are apt to reap the fruit, the seeds of which were planted by the pioneers. A simple, authentic statement of the beginning of history may be worth whole romances a hundred years hence. These statistics have been compiled from accurately reported facts which have been industriously inquired into, and the material of which may become poetry and romance in another age.

The history of Chicago is a romance already; its educational system is rapidly and surely advancing onward to fine achievements; and its public improvements, which, in one generation, have risen from a flat morass, with little more than a ditch running through it, to a magnificent city of business palaces and homes of princely splendor along with those of humble comfort, surely enough attest the persistence and endurance of a race of "Conquerors of the Earth" from many climes, which all who visit the World's Columbian Exposition in 1893 will at once recognize.



CHICAGO IN 1880. FROM THE LAKE.

APPENDIX.

EARLY HISTORY OF CHICAGO.

The few families who had settled in the immediate vicinity of Fort Dearborn, near the head of Lake Michigan, first realized that civic authority extended to their cabin doors in 1823. It was then that the officials of Fulton County, within whose boundaries, at that time, this unorganized settlement existed, levied a tax of four mills on the dollar upon all personal property in the settlement, exempting only household furniture, as provided by law. Amherst C. Ransom, Justice of the Peace, was appointed Collector, and enriched the Fulton County Treasury by the sum of \$11.42, showing the total valuation of the personal property of embryo Chicago to be \$2,284.

When Peoria County was organized, two years later, Chicago, which even at this time had but a mythical existence, the name applying sometimes to the river and again to the cluster of cabins on its marshy banks, came within its jurisdiction.

The Illinois and Michigan Canal Commissioners, having at length obtained their coveted and magnificent land grant, were authorized to lay out towns upon the sections allotted to them by the terms of the grant. In accordance with this, Chicago was surveyed and a plat of it published by James Thompson, a canal surveyor, on August 4, 1830. This date marks the birthday of Chicago as a town and the disappearance of the "Fort Dearborn Settlement."

Section No. 9 fell to the canal interest and was the one upon which Chicago was platted. It was situated north of and adjoining School Section No. 16. The line between these two sections was Madison street and their eastern boundary line was State street.

East of State street, extending from Madison street one mile north, was the tract included in the Fort Dearborn Reservation and the Kinzie pre-emption, which afterwards became additions to the town. The portion north of the river had been pre-empted by Robert A. Kinzie, and the portion south to Madison street comprised the Reservation.

Section No. 9, now called "Original Town," fortunately included the lands along the main channel of the river and surrounded the junction of

its two branches. The original limits of Chicago were Madison street on the south, Desplaines street on the west, Kinzie street on the north and State street on the east, embracing an area of about three-eighths of a square mile. The public thoroughfares running east and west, as recorded on Thompson's map, were Kinzie, Carroll and Fulton streets on the West Side, and North Water, South Water, Lake, Randolph and Washington streets, naming them in their order from the north, while those running north and south were Jefferson, Clinton, Canal, West Water, East Water, Market, Franklin, Wells, "La Salles," Clark and Dearborn streets, naming them in their order from the west. Included within these limits were the hitherto independent settlements of Wolf Point, west of the confluence of the north and south branches of the river, and what was known as the "Lower Village" on the South Side.

The year after the survey of the young town it received increased distinction by being designated as the seat of justice of the newly organized county of Cook.

The Act, passed by the General Assembly and approved January 15, 1831, organizing the county of Cook, directed that an election be held at Chicago on the first Monday in March, 1831, for the offices of Sheriff, Coroner and three County Commissioners. By a provision of this Act a ferry was established across the river, free, for the inhabitants of the county.

County organization followed in March, embracing all of what are now the counties of Cook, Lake, McHenry, Du Page and Will. The only voting place in the county at the first election was Chicago. The first Commissioners elected in Cook County were Samuel Miller, Gholson Kercheval and James Walker. William See was appointed Clerk and Archibald Clybourn, Treasurer. All the above mentioned officials resided within the limits of Chicago, except James Walker, who lived near the Du Page River.

The first business transacted by the new county organization was the issuing of two licenses to Chicago landlords, Elijah Wentworth and Samuel Miller, for a fee of seven and five dollars, respectively.

About this time the State granted to the county twenty-four canal lots, the proceeds from the sale of which were to be used for the erection of public buildings. Sixteen of these lots were sold, and the money realized was used to defray current expenses, the remaining eight lots being set aside for a public square, now the site of the present city and county buildings.

The first structure erected on this square was what was called at that time "the Estray Pen," at the contract price of twenty dollars, but for which the contractor, Mr. Miller, afterwards accepted twelve dollars as payment, thus admitting, as was charged by the Commissioners, that he did not do the work according to contract. Contractors, of course, have changed their methods since those days.

Initiatory steps were taken at this time for the establishment of two country roads, one from the town of Chicago to the house of James Walker, on the Du Page river, and the other to the house of the Widow Brown on Hickory Creek. These two highways were intended to open up communication with the southwestern portions of the county and between the voting places in the three districts which had been established. The road to the Widow Brown's was laid on what is now State street and Archer avenue, and the Du Page road on what is now Madison street and Ogden avenue, thence to Lawton's, near what is now called Riverside.

The last occurrence worthy of note in the year 1831, was the gathering in Chicago of nearly one thousand (1,000) Indians to receive their annuities, which were disbursed by Col. Thos. J. V. Owen, Indian Agent, assisted by John Kinzie and Gholson Kercheval. The payment was made in September, and was the occasion of no little anxiety on the part of the settlers as it was known that amongst the friendly Indians there were emissaries from the Sacs of Black Hawk's band, who had but recently reluctantly removed west of the Mississippi, attempting to incite the assembled tribes to make common cause with them against the whites, and to inaugurate a general war for the extermination of the settlers and the repossession of their old hunting grounds. The plot fell through, however, the payments were made and the whole affair wound up in a good drunken orgie, after which the tribes returned peacefully to their respective villages.

In 1832 rumors of a renewal of hostilities by the Indians seriously affected the tide of immigration, and the white settlers sought refuge in Fort Dearborn.

The arrival on July 10th of troops under command of General Winfield Scott and their march through the country to Rock Island, had the effect of again staying the progress of war, and on August 2d, the final battle was fought between the Indians and General Henry Dodge's forces.

This campaign proved of great value not only to Chicago but also to the surrounding country, for on their return to the East the soldiers gave such glowing accounts of the beauty and fertility of the country, that a strong tide of immigration immediately set in from the East. The first point of destination, prior to pushing beyond to the promised land, was Chicago. Consequently the immigration, which continued in increasing volumes for the next four years, brought to Chicago a transient population, from which she drew many permanent residents from those who saw brighter prospects in her future than in the allurements of the country beyond.

Many only stopped at Chicago temporarily, while some remained to swell the resident population of the embryo city.

At the close of 1832 there were few signs of outward improvement—only about a score of permanent residents had been added, but there was, nevertheless, a strong faith awakened that on account of her geographical

position and her natural advantages as a harbor, Chicago was destined to become the metropolis of a yet undeveloped and uncivilized country. Inspired by this, many of the newcomers remained.

During the Summer of 1832, George W. Dole built what was probably the first building for business purposes in Chicago—it stood at the southeast corner of South Water and Dearborn streets, where it remained until 1855. Philip F. W. Peck during the Fall of 1832 commenced the erection of a business building at the southeast corner of South Water and La Salle streets, which was completed and occupied the following May.

The two above named were certainly the first business structures built in Chicago.

The building erected by George W. Dole was the first used in the packing of beef and pork in Chicago, the cattle and hogs being slaughtered in the rear of his building near the ground which is now the site of the Tremont House. Previous to this, however, the Noble Brothers, Mark, Jr., and John, and Gurdon S. Hubbard, had driven in and slaughtered droves of cattle and hogs, but it remained for George W. Dole to inaugurate the packing of provisions for the mercantile and lake trade. He is therefore justly known as the father of the provision, the shipping, the warehouse and the elevator business of the city of Chicago, which has now assumed such gigantic proportions.

Immigration received a lively impetus in the Spring of 1833, the town almost doubling its inhabitants, and erecting nearly one hundred and fifty frame buildings during the year. Most of these buildings were built on the north and south sides of the Chicago river, east of the forks.

Several events transpired during the year which, combined, served to increase the prosperity and brighten the future prospects of Chicago. Amongst others the energetic efforts of her citizens to obtain a harbor appropriation, added to the "canal enthusiasm," spread the fame of Chicago very much to her benefit.

The Summer of 1833 found Chicago with a population of three hundred and fifty and her citizens prepared to organize under the general legislative Act for the incorporation of towns, passed February 12, 1831. By its provisions, citizens of any settlement containing a population of over one hundred and fifty were authorized to hold a meeting and decide whether they wished to be incorporated.

Accordingly, late in July of that year, a public meeting was held to decide whether incorporation should or should not be effected. Twelve votes were cast for incorporation and one against—the vote in opposition being cast by Russell E. Heacock, who lived beyond the extreme southern boundary of the proposed town, while his business interests were at the settlement. He moved into town the following year.

In accordance with the action of the public meeting, an election was held August 10, 1833, upon the call of the clerk of said meeting, upon five days' notice, for the choosing of five Town Trustees, who were to hold office for one year.

The successful candidates were Thomas J. V. Owen, George W. Dole, Madore B. Beaubien, John Miller and E. S. Kimberly. The scattering votes were divided among Philo Carpenter, John Wright, Richard J. Hamilton, James Kinzie, Dr. John Taylor Temple, John B. Beaubien, Robert A. Kinzie and John S. C. Hogan.

The first regular meeting of the Board was held two days after the election. All the members elect were present and received the oath of office from Col. Hamilton, clerk *pro tem.* and notary public. An organization was then effected by the election of Thomas J. V. Owen, president, and Isaac Harmon, clerk. It was then ordered that Board meetings would be held at the house of Mark Beaubien, on the first Wednesday evening of each month, beginning with Wednesday, September 4, 1833.

Up to 1834 Chicago could not be said to have had a *harbor*; the bar across the mouth of the river making it impracticable for laden vessels to enter. Vessels were necessarily anchored outside of this bar, and their cargoes brought ashore in lighters.

The Illinois and Michigan canal project was already inaugurated by favorable legislative grants, and a harbor at this point was absolutely necessary; and Congress having already favored the canal scheme, nothing was more natural than to suppose that an appropriation would soon be made for a harbor improvement. Such an appropriation was accordingly made on March 2, 1833, and work was commenced July 1, of the same year. The amount appropriated was \$25,000. During the Summer and Fall about five hundred feet of the south pier was finished, and in the following Spring the north pier was extended about the same distance. The old tortuous channel to the south being cut off, made a straight cut for the river across the sand-bar into the lake. Little dredging was done; indeed it was unnecessary, for a heavy freshet, in the Spring of 1834, cleared the new channel, permitting the entrance of vessels of large burden for the first time during the following Summer.

At this time there were four churches in Chicago, one being St. Mary's Catholic church, and the other three, Protestant churches, of the Presbyterian, Baptist and Methodist denominations. There were also four hotels; the old Wolf Point Tavern, the Sauganash, the Green Tree Tavern and the Madison house.

The bridges over the river were quite primitive and of rude construction. A foot-bridge crossed the North Branch above the old Wolf Point tavern and the other was more pretentious and crossed the South Branch between Randolph and Lake streets. The latter bridge was built at an

expense of \$486.20, of which sum \$200.00 was contributed by the Pottowatmie Indians, and was the only bridge across the river or its branches over which teams could travel prior to 1834.

The only manufacturing establishments at this early day, were a tannery, near the old Miller Tavern, where John Miller and Benjamin Hall were engaged in tanning hides into a rough but durable leather; and a small saw mill on the North Branch, near Clybourn's.

It may now be considered that the town was fairly born, but as yet only in its corporate infancy. Its past history and condition at that time did not warrant the extravagant hopes and the faith that the citizens had in its future development, but its subsequent history has transcended the wildest prophecies of its early friends.

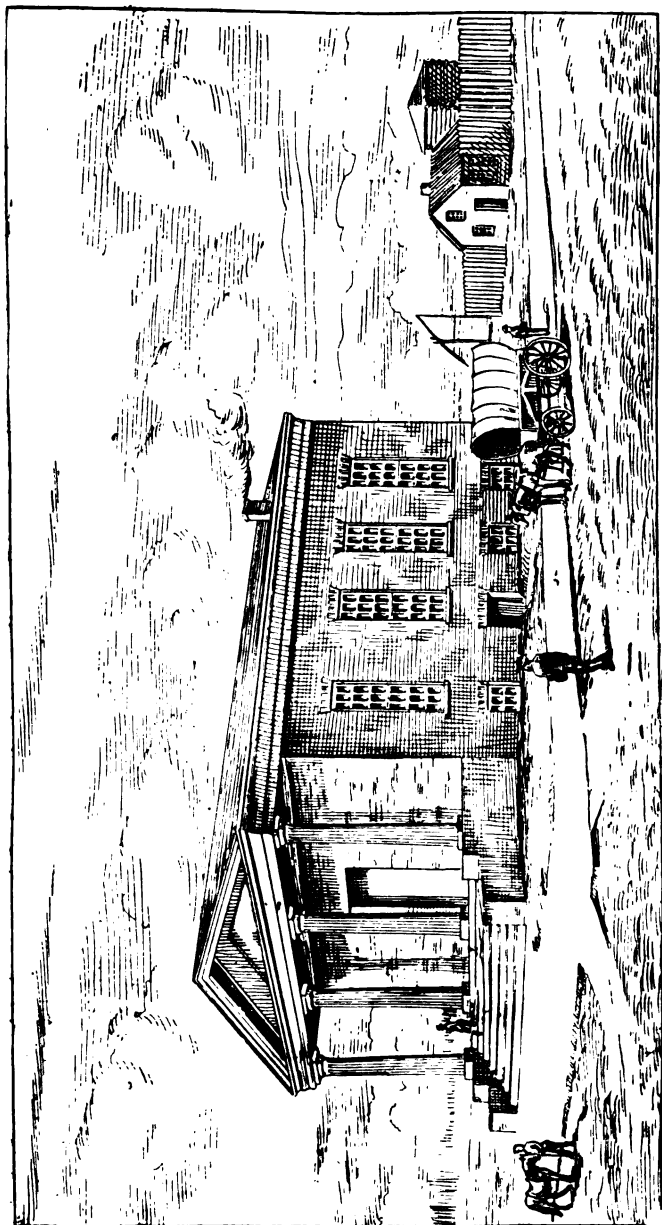
About the end of the year 1833, the old log jail was built on the northwest corner of the "square," the citizens believing that something more dignified than the old "estrays pen" was required. Officer John Beach, father of the late Dr. James S. Beach, was made custodian of this structure and possessed the keys of authority. From the center of the square arose a tall liberty pole.

In November, 1833, a code of laws was adopted to regulate the ordinary affairs of the town, and *The Democrat*, which made its first appearance November 26th, was designated the official newspaper.

The first financial obligation incurred by the town was the making of a loan of \$60.00 in October, 1834, to be used for the purpose of draining State street, in the vicinity of Lake and Randolph streets, and redeeming a large slough which existed there. This was followed by several important measures during 1835, among which were the establishment, in June, of a permanent Board of Health; the organizing, in November, of a Fire Department; the borrowing, in June, of \$2,000 with which to improve the sanitary condition of the place, in view of the threatened invasion of cholera, and the adoption, in August, of a lengthy and comprehensive code of local laws.

November 21, 1835, a seal was adopted by the Board, but neither the instrument itself nor any impression made by it is now in existence; even the few documents which survived the fire of 1871 being without an impression.

During the fall of 1835 a one-story and basement brick court house was erected on the northeast corner of the square, on the southwest corner of Clark and Randolph streets, opposite the present site of the Sherman House. The county officers occupied the basement story; the court room, which was on the upper floor, being simply one oblong apartment, capable of seating about two hundred persons. The fourth and last election under the Town System, was held at the Tremont House, June 6, 1836.



THE FIRST COURT HOUSE, 1880.

Beginning with the period about 1832, and continuing and gradually increasing, the era of internal improvements played an important part in stimulating and accelerating immigration, and at the same time it had a wonderful effect in inspiring those who had already become permanent residents of the city.

In 1837 the flourishing young town grew restive in the fetters of a mere township, and actuated by a spirit of unequalled courage, the leading citizens of the town determined upon its incorporation as a city. The preliminary steps having been taken looking to this end, it was accomplished on March 3, 1837, and the first city officers were elected May 2d following.

In the discussions of the various provisions of the first city charter, matters became very lively when the sixty-second section was reached.

This was a very important section, inasmuch as it related entirely to the power of the assumption of indebtedness by the proposed city authorities. Some of the more sanguine residents were so imbued with the progressive tendencies of the times that they favored the unlimited extension of power in that direction. A more prudent counsel prevailed, however, and the capacity of the incorporation to incur debt was limited to one hundred thousand dollars per year, with which alteration the draft of the original charter was adopted.

The result of the first city election, at which seven hundred and nine votes were cast, was as follows: William B. Ogden was elected mayor; J. C. Goodhue and Francis C. Sherman, Aldermen of the First Ward; J. S. C. Hogan and Peter Bolles, Aldermen of the Second Ward; John D. Caton, Alderman of the Third Ward; A. Purce and F. H. Taylor, Aldermen of the Fourth Ward; Bernard Ward, Alderman of the Fifth Ward, and Samuel Jackson and Hiram Peterson, Aldermen of the Sixth Ward. In addition to the Mayor and Aldermen, the other elective officers were the City Clerk and six Assessors. The annual election was fixed for the first Tuesday in March. The power was fixed in a Common Council, which was authorized to appoint constables, street commissioners, a City Surveyor, a City Treasurer and a Collector; organize fire companies, a Board of Health and an Educational Department. In fact, all of the departments were under the control of the Council and were expected to obey its orders.

The Legislature passed an Act February 14, 1851, reducing the Charter into smaller compass and creating a Board of Health, and also authorizing the Council to establish a House of Correction for juvenile offenders. An Act amendatory to this Act, approved February 28, 1854, provided that a City Marshal should be elected biennially and also authorized the Council to elect a Superintendent of Special Assessments. On February 15, 1851, by an Act of the Legislature, a Board of Water Commissioners was created and the Chicago Hydraulic Company was incorporated.

The office of Superintendent of Schools was created by ordinance, June 23, 1854.

The Board of Sewerage Commissioners was incorporated by legislative enactment February 14, 1855, and rules were laid down for the government of the reform school, and taxation authorized for the maintenance thereof on February 14, 1857.

A revision of the Charter was approved February 18, 1857, and by its provisions all the appointive power was taken from the Council and vested in the Mayor. The change was thought necessary as there was general dissatisfaction over the appointments made by the Council and it was thought also, that by this plan responsibility would be fixed. About this time a financial department was created with the City Comptroller as its head. This department had hitherto been under the control of the Council. These changes above mentioned are the most important that were made in the Municipal Government.

The first census of the city taken after its incorporation was that of July 1, 1837, which showed a total population of four thousand one hundred and seventy persons, as against the town census of 1835, which showed three thousand two hundred and sixty-five inhabitants.

Before referring to those early structures used by the corporation and by courtesy in those early days styled "City Halls," it is deemed proper to give a brief description of a noted edifice, known as the old "Saloon Building," because it was used as the first City Hall. This structure stood on the southeast corner of Clark and Lake streets, and was erected in 1836 by Captain J. B. F. Russell and George W. Dole. At that time it was not only the finest hall in Chicago, but was not eclipsed by anything of the kind in the West. It was devoted to public entertainments of all kinds, political and religious meetings, concerts, traveling shows, etc. The name of this hall would, to the casual reader of to-day, suggest a place where intoxicating beverages were sold and, consequently, not at all a suitable place for civic gatherings, not to speak of religious and literary meetings. Such an impression, however, would be erroneous, the word "Saloon" being used simply as a synonym of the French word *Salon*, meaning a grand or spacious hall. The Hon. John Wentworth, in his reminiscences, says that when it was just completed it was the largest and most beautiful hall west of Buffalo.

"Here it was," says Mr. Wentworth, "that Stephen A. Douglas made his first speech in Chicago." It was in this hall that the first joint political discussion was ever had in Northern Illinois, in 1838, between Mr. Douglas, and his competitor for Congress, John Todd Stuart. It was at this very meeting that one of the citizens, Judge Henry Brown, in a speech, became so enthusiastic over the future which, with prophetic vision, he saw in store for the young and growing city, that he made the startling prediction that the child was already born who would live to see Chicago with a population



THE SECOND COURT HOUSE, 1863.

of two hundred thousand souls. At once the speaker was greeted with the sarcastic, but good natured cry of "Town Lots," an implication that he was interested in Chicago real estate. A handsome modern building now stands on its former site. With the rapid growth of the city in size and population came the advent of theaters, halls, churches and court rooms, and the old "Saloon Building," having served its day and generation, was forced from its long-held prominence before the eyes of Chicago citizens, and soon existed only in the memories of those to whom a simple mention of its name awakens a flood tide of recollections.

In January, 1848, the Market Building on State street was erected by the city, and was the first municipal structure belonging to the city, the Common Council having heretofore rented their accommodations. The building was situated in the center of State street, fronting forty feet on Randolph street and running north toward Lake street, one hundred and eighty feet. It was built of brick and stone, two stories in height, at a cost of \$11,000, John M. Van Osdel being the architect. The second story was divided into four rooms, the one on the north end being used as a library, and the one on the south end as the City Clerk's Office. The center rooms, divided only by folding doors, were used by the Common Council and for other public purposes, the Council occupying them for the first time on November 13, 1848.

In 1850, after deliberation, it was decided that the city and county should erect a combined court house and jail in the center of the public square; the Common Council agreeing to unite with the county in its construction. The corner stone of this edifice was laid on September 12, 1851, by Prof. J. V. Z. Blaney, Acting Grand Master of the Grand Lodge of Free Masons of Illinois.

The building was completed in 1853, under the superintendency of John M. Van Osdel, Architect, at a cost of \$111,000, which had been borrowed on the bonds of the county, having from seven to eighteen years to run at ten per cent., interest payable semi-annually. The walls of the structure were faced with gray marble from the Lockport quarries in New York, costing \$32,000. In the basement of the building was the jail and the Jailor's dwelling rooms, the Sheriff's office and the City Watch House. In the second story were most of the city offices, the armory being in the east wing. The Common Council Chamber was in the third story opposite the court room. The Court of Common Pleas first occupied the edifice, which continued to serve the city until it was swept away by the great fire of 1871.

During the existence of Chicago as a Township, her people were extremely conservative in financial affairs, so much so, indeed, that any proposition to borrow money for any purpose whatever seemed to create the greatest consternation. Some of the officials even resigned their offices

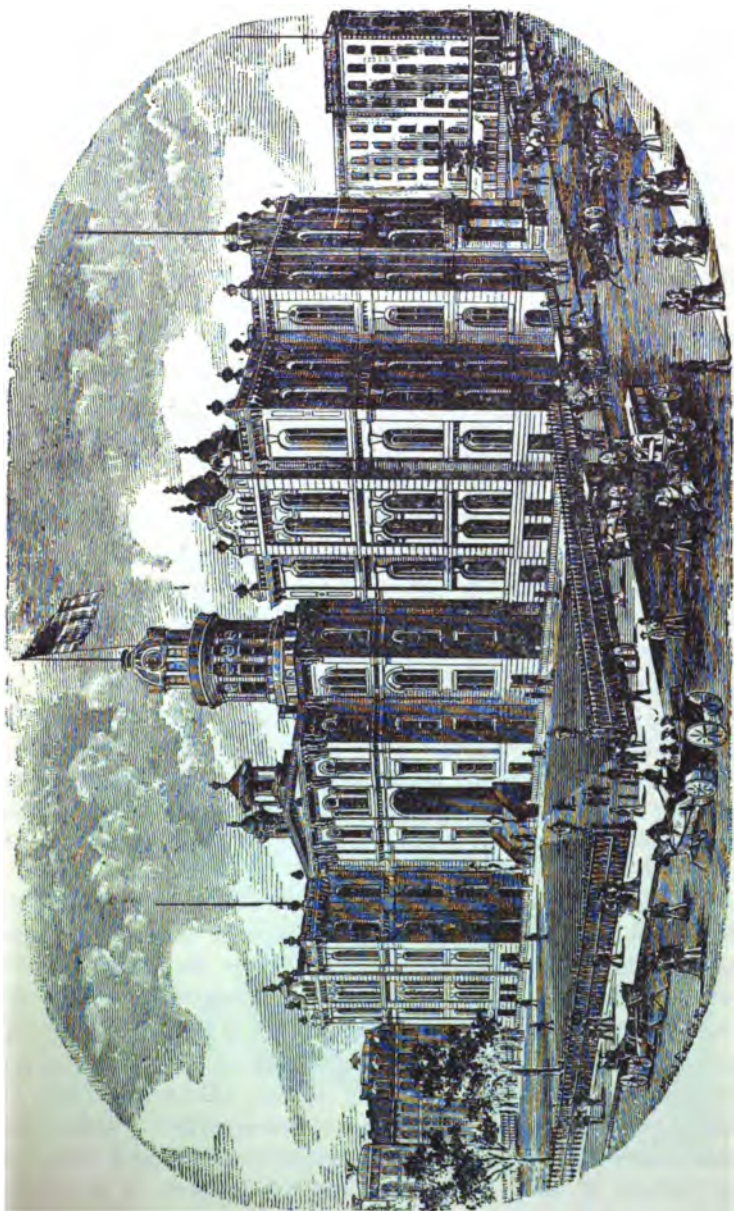
rather than sanction such seeming recklessness. One instance was that of John S. C. Hogan, who voluntarily ceased to act as City Treasurer in June, 1835, because the corporation was determined, as a sanitary measure, to borrow \$2,000, in order to have the streets cleaned and the town otherwise made presentable and inhabitable. After the town people had fairly entered into the spirit of becoming a city, however, their old apprehensions gradually wore off, and after a time such measures were urged with general enthusiasm.

Immediately following the Act of Incorporation of the city, the old town organization paid over to the City Treasurer the sum of \$2,814.29. With many permanent improvements to be accomplished, this was not a remarkably brilliant outlook for the young city of over four thousand inhabitants. Among other things it was found absolutely necessary that more effective means should be provided to guard the city against fire, and for this purpose two additional engines were needed. Streets required improvement, and their drainage demanded attention. It was resolved to borrow \$25,000, but to resolve is not always to accomplish. The proposition was made to the Branch Bank of the State of Illinois, but was not accepted, the Bank evidently considering at that time that the burden of carrying the international improvements of the State of Illinois was sufficient, without attempting to foster the internal improvements of the city of Chicago. Consequently resort was had to the issuing of city scrip in denominations of one, two and three dollars, bearing interest at one per cent. and receivable for taxes in sums not exceeding \$5,000.

In 1837, the city and county authorities did not act in harmony. The city received only \$1,000 from tavern and grocery licenses, while supporting a \$5,000 court, whose benefits were shared by the county, when suddenly the county refused to care for her paupers. This was one of the obstacles to be surmounted during the hard times of 1837. The city and county, however, soon came to an amicable settlement of their difficulties, and each bore a just proportion of the legal and eleemosynary burdens.

The finances of the city by the first charter were entirely in the hands of the Common Council, the Treasurer and Collector being merely clerks. The Assessors were elected, but the Treasurer and Collector were appointed by the Council. The supplementary Act of February 16, 1847, made the Treasurer and Collector elective offices, and these provisions remained in force until February 18, 1851, when the Treasury Department was created, embracing, in addition to the above officers, the City Comptroller, appointed annually by the Mayor. He was the head of the new department.

About the year 1841, the Hydraulic Mills Company was incorporated under the laws of the State of Illinois, and was a combination of a flouring mill and pumping works, situated on the northwest corner of Lake street



THIRD COURT HOUSE. DESTROYED BY FIRE, OCTOBER 9, 1871.

breadth of the land as "the Convention City." No convention ever held here was fraught with any more importance than the first one just mentioned. To quote from the *Chicago Evening Journal* of that date, it was "No gathering for political or temporary effect, no indignant convocation for the mere indulgence in invective; no effervescence of feeling that should expend itself in empty resolves, be the wonder of the hour and then forgotten; but it was an occasion upon which great and startling facts—facts embodied in figures that cannot lie—were presented; facts in which the farmer and the artisan, the merchant and the manufacturer, the capitalist, the sailor before the mast, and his family at home, were all proportionably and deeply interested; facts involving the history of the country, from that hour when the hardy pioneers left New York behind them, or crossed the heights and pierced the dense forests of Pennsylvania, in quest of 'the better land' that was at last disclosed to them, all cleared and ready for the furrow. On this memorable occasion there were men of every political bias, and of every sectional interest, but all acting together as some great brotherhood, speaking with one harmonious voice, and acting as one man." Up to this time this was the most powerful impetus imparted to the ambitious young city, which was taken advantage of, as evidenced by her unprecedented strides to the position which she holds to-day as the Metropolis of the West, the second city in the Union in population, and the first in extent of territory.

This necessarily brief record has merely referred to a few of the items of interest during the early history of our beautiful and world-renowned city, leaving to the papers following a more detailed account of the various public improvements.

EARLY SANITARY HISTORY.

We have no record of the health of the earlier settlers of Chicago, but it is no doubt safe to assume that they only suffered from the ordinary diseases incident to a new country and the life they led. The first evidence we have of the appearance of a pestilential disease was in 1832, during the Black Hawk war, when cholera was brought here by the troops of General Scott. This disease was introduced into Quebec by an emigrant ship from Europe in the early part of the year, and from thence soon spread to Buffalo and other lake ports, and broke out in such a malignant form among the troops while in transit here, on Lake Erie, that the greater portion of the soldiers were landed at Fort Gratiot, where forty of them died. The war brought quite a number of immigrants here, and the scourge made dreadful havoc, both in the garrison and amongst the citizens. So great was the delay caused by the breaking out of the cholera among the troops that they did not reach the seat of war, as it was terminated by the defeat of the Indians at the battle of Bad Axe, and by the capture of Black Hawk.

The first sanitary regulation made by the authorities of the town was on November 7, 1833, when the Town Trustees declared it to be unlawful to "throw or put into the Chicago river, within the limits of the town, any carcass of any dead animal or animals, under a penalty of three dollars for each offense." It would appear from this that even at that early day our sluggish stream demanded legislation to prevent it from becoming a dangerous public nuisance.

In 1834 ordinances were passed providing that no "straw, shavings or other substance," be thrown into any "sewer, drain or ditch" within the town limits, under a penalty of two dollars and the expense of removing the nuisance; that no person should deposit any "dung, dead animal or carrion, putrid meat or fish, entrails, or decayed vegetables, or any other offensive substance whatever," in the streets or river under a penalty of three dollars; prohibiting any owner of a lot from allowing such deposits to be made on the lot, or in the streets or alleys adjoining the same, under a penalty of five dollars for each offense, and empowering each Trustee to order the removal of all nuisances at the expense of the owners of lots or premises adjoining.

More than two months after the passage of the ordinance above mentioned, a meeting of the Town Trustees was held "to make suitable arrangements to prevent the introduction of the dreadful and fatal disease, the

cholera, into said town." The condition of the town was taken under consideration, and a full discussion of the impending danger followed, resulting in the adoption of measures intended to be preventive.

The first Board of Health was established at this time, though its functions were special and its existence short. By an ordinance passed at the same time as the foregoing, Dr. Wm. Clark and Dr. E. S. Kimberly were appointed to procure a suitable house "without the limits," for an hospital, to prescribe for all persons attacked with cholera, "and to give such instructions to the Supervisor as shall promote the health of said town."

By another ordinance, arbitrary authority was given the Supervisor to order "every male person in said town over the age of twenty-one years" to work upon the streets and alleys within the corporation, for the purpose of cleaning them, and failure to work or furnish a substitute was punished by a fine of five dollars for each offense. The cholera scare began to pass away, and the ordinances, always loose enough, were modified; for we find that on September 1 it was ordained that any person not wishing to work on the streets could compromise the matter by paying one dollar instead of five dollars, as before.

We have no means of knowing, even approximately, the mortality, if any, from cholera during the year 1835, and neither can we judge of the efficiency of the measures taken to keep the plague out of the city and to stay its progress if it was introduced, though there is no evidence that it appeared at all. No record of the deaths was kept, and all the regulations were primitive, however effective they may have been at the time.

One good was accomplished by the cholera fright, and by the agitation and discussion which it caused. The propriety, if not the necessity, of making some permanent provision for preserving the general health of the town and for meeting future contingencies in the shape of cholera, or other epidemics, forced itself upon the Trustees; and accordingly we find them organizing a Board of Health, and prescribing its duties and powers. Their authority for so doing was derived from Section 6 of an Act passed February 11, 1835, entitled "An Act to change the Corporate Powers of the Town of Chicago," by which the Trustees were authorized to "make regulations to secure the general health of the inhabitants." The first meeting of the Board was held on June 23rd of the same year.

Another important result of the agitation of sanitary matters was an order issued August 13th, directing the Town Surveyor to lay out sixteen acres of some suitable canal lot south of the Chicago river, and ten acres of some similar lot north of the river, for cemetery purposes. The Surveyor did his work promptly, and reported its completion on August 26th. The Board of Town Trustees "posted notices in three public places" inviting proposals for fencing the surveyed grounds, and when the fencing was finished, further interments within the town limits were forbidden. The

North Side Cemetery was located on what is now Chicago avenue, close to the lake shore, and the South Side Cemetery near where Twenty-third street now crosses Wabash avenue. The steady and rapid expansion of the city compelled the evacuation of these burying places soon after, and a new site had to be chosen, between the present North avenue and Asylum place.

A short time after its organization the Board of Health seems to have existed only in name. Whether the Board ever met or not we do not know, as no minutes remain to tell of its doings. It is but fair to assume that if anything worth preserving was done it would have been recorded in some way or another. We are not told anything about the health of the city during the year 1836, but probably there was no unusual sickness, or alarm from an anticipated epidemic during that year. No necrological record of this period is extant. So long as the lives of the citizens were exposed only to the ordinary diseases incident to the country, no attention was paid to sanitary measures.

On February 10, 1837, an Act was passed by the General Assembly authorizing the President and Trustees of the town of Chicago to use for cemetery purposes a lot of canal land, the land to be paid for at a valuation made whenever the State should decide to sell the canal lands in the vicinity of Chicago. The land was to be forever devoted to burial purposes. This was the old city cemetery, since vacated.

The city charter passed by the General Assembly March 4, 1837, provided for the appointment annually of three commissioners as a Board of Health; for the appointment annually of a Health Officer, whose duty it was to visit persons sick of infectious diseases; compelled physicians to report patients laboring with infectious diseases; for the removal three miles outside the city limits of all persons not residents suffering under infectious diseases, and empowered the Council to erect one or more hospitals within the city, and to control and regulate the same. Under this law Dr. J. W. Eldridge, A. N. Fullerton and D. Cox were elected Health Commissioners, and Dr. D. Brainard was appointed Health Officer.

During the Summer of 1838 the laborers employed on the Illinois and Michigan canal work were attacked with a strange sickness, that struck them down very suddenly. It was not cholera of the usual type, though physicians seemed to think it was a modified form of that disease. For want of a better name, it was called "canal cholera." As fast as the men succumbed to the strange complaint, their remains were sent to Chicago and thrown on the roads near Bridgeport, where they were allowed to remain for a long time without burial. The citizens were afraid to touch the bodies, fearful that by so doing the disease would be conveyed to the city and infect the inhabitants.

For several years nothing unusual occurred affecting the health of the city requiring from the Board of Health anything more than routine duty.

home-like, so that the objections urged against going to the old "Lake Hospital" would not be urged against this one. Rooms were provided for doubtful cases, not connected with the wards, where inmates could remain without danger of infection until all doubt was removed. Rooms were also provided for private patients, where any one could go and have all the conveniences of home.

The experience of the previous Winter clearly demonstrated that the only way by which small-pox could be kept down is by thorough inspection of infected houses and neighborhoods, and the early isolation of cases, with power to vacate all boarding and tenement houses where a number of cases have occurred. This policy, followed up for a time, rid the city almost entirely of the disease.

The force of sanitary policemen was wholly inadequate to the performance of the duties required by the department. It was an area of thirty-five square miles, with a population of at least 400,000. This was divided into twenty wards, with an average area of one and two-third square miles for each ward. The appropriation of 1873 provided for eighteen men; this did not give a man for each ward; in fact it gave but sixteen, two on special duty—one at the office and one as meat inspector. The inspector of meats did what he could towards discharging his duty, but the work was necessarily done very imperfectly, the number of markets and slaughter-houses in the city to be looked after being so situated that no one man could do it justice. Nothing is more important to a city or people than the food they eat. A strict surveillance should be kept over all slaughter-houses and markets, and everything not sound condemned.

In the Summer of 1873 Chicago was visited, in common with many places in the west and south, by cholera. It is true that sanitary science and care has rid this, the most terrible of diseases, of many of its terrors. It is a well known fact that good water, perfect drainage, and personal attention to cleanliness and diet, with proper care, has rendered the disease, to a certain extent, controllable. During the epidemic of the Summer of 1869 the disease struck hardest where sanitary laws were not observed. When the first cases occurred here, the department went to work quietly and did what could be done.

The cases of cholera occurring in and about Chicago during the Summer of 1873 were principally in the Fifth ward, south of Thirty-fifth street and west of State street, and in the adjoining town of Lake, which was a continuation of this district, being separated from the city at that time by Thirty-ninth street.

The district was densely populated, principally by foreigners, consisting of Germans, Swedes and Poles, the families living in small rooms, poorly ventilated, and subjected at all times to the ill effects of overcrowding. The district was low, with sandy soil and surface drainage. The water used,

at the time of the first case, was procured from shallow wells, supplied with surface water, ordinarily from five to sixteen feet in depth, and walled up with pine boards, the water rising to within two feet of the surface of the ground.

Many cases occurring in the beginning and, in fact, throughout the continuance of the disease, were reported as cholera morbus, as many physicians were loath to acknowledge the disease as cholera. Many cases so reported were identical with the cases reported as cholera.

There were, outside of this district, thirteen cases reported as deaths from cholera in different parts of the city, the most of them from two to four miles from the district in which the first cases occurred, and with one exception in locations where overcrowding and filth were prevalent.

There were six cases in the Fifteenth ward, two in the Third ward, one in the Eighth, one in the Thirteenth, and one in the Twelfth ward. After the disease broke out in the Fifth ward, many persons fled to other parts of the city; however, no connection could be traced between the cases in the Fifth ward and the cases in the wards mentioned above.

The first case occurred at No. 444 Arnold street, in the person of John McFee, a bridge-builder, who had been working near Memphis, and left on account of the cholera. When he arrived in Chicago he had diarrhoea, which remained unchecked, and after a week or ten days developed choleraic symptoms and proved fatal.

The second case was at No. 945 Butterfield street, two miles from the first case, in a tenement house occupied by several Danish families.

From the beginning, active measures were taken by the officers of the Board of Health, Drs. Rauch and Reid. Thorough disinfection was prosecuted, and the people warned not to use the water from surface wells. The Board of Health recommended that water-pipes be laid, so that the district could be supplied with pure lake water, and ordered the wells to be fouled with carbolic acid so that the water could not be used for drinking or culinary purposes.

The Board of Public Works supplied the district with water as far south as Thirty-ninth street, where public hydrants were placed by the Board for the benefit of the people in the town of Lake. Butterfield street was supplied June 24th; Burnside street July 13th, and Arnold street June 10th to 21st.

The effect of cleanliness on families and individual cases was marked. Those who observed sanitary laws, attended to the disinfection of stools, and who were prompt in calling a physician with few exceptions recovered, and the occurrence of a second case in such families was rare. On the other hand, when the stools were not cared for, and the vomit permitted to remain on the floor, and the bedding (principally feather-beds) used without having been properly cleaned, and where no attention was paid to ventilation

or personal cleanliness, several cases would generally occur, and as a rule prove fatal. As but few cases were reported to the Board until they had proved fatal, there were no data aside from the cholera hospital, by which to form an estimate of the value of any plan of treatment.

During the Fall and Winter of 1872 there appeared the epizootic or horse disease. After traversing the Eastern States it made its appearance in Chicago on the eleventh day of October. The disease spread rapidly, until almost every horse in the city was afflicted. During the prevalence of this disease cattle were substituted for horses, and the business of the city done in that way. The number of horses dying during the epidemic was 1,150.

The mortality of 1870 was not characterized by any general epidemic, although the number of deaths was greater than in 1869, the deaths for that year being 6,488, or 835 less than for the year 1870. The increase of deaths was accounted for by the increase in the population during that year, the ratio remaining about the same for each year. The largest mortality from any disease was from cholera infantum, 916 having died from that disease.

The mortality statistics for 1871 were very imperfect, the records of the office, as before stated, being destroyed on October 9th. The mortality for the year was some 347 less than for 1870, notwithstanding the deaths caused by the great fire. The mortality that week was: By burns, ninety-six; by falling walls, five; and some ten or twelve others were found, upon whom the Coroner held inquests, some of whom died of shock, some of suffocation. The total number of inquests held was 117, the result of the fire.

The total mortality for the year 1872 was 10,156, being 3,180 more than in 1871. The cause of this is apparent when we consider the great number of people brought together in barracks during the winter, the crowding in the tenement houses that remained, and the great influx of workmen engaged in the work of rebuilding the city, who were congregated in cheap boarding houses without reference to comfort or ventilation. This overcrowding brought its legitimate result—an increased death rate—although during the year no epidemic existed. The highest death rate was from cholera infantum, being 1,469.

The mortality for 1873 was 9,557, a decrease of 599 compared with 1872. The decrease in the death rate was very noticeable during the latter part of the year. The removal of so many people in the barracks and the less crowded condition of the tenements, the better ventilation of the new buildings that replaced the old ones, had its effect on the mortality. During the Summer, although cholera was present, the cases of cholera infantum were less than the year before, there being 1,260 cases this year against 1,469 last year. During the year many miles of sewers were laid, and a large area of our city drained. The Board enforced the law compelling persons to connect dwellings with sewers. Much good was thereby done, and the sanitary condition of the city much improved.

After 1873 the Board did much to improve the condition of the packing houses in the city, and caused many of the establishments outside the city to introduce machinery to prevent the escape of nauseous odors.

Early in 1874 the Board passed a regulation that all packing and rendering houses within the city limits should put in apparatus to consume the gases from the rendering tanks. Prior to this regulations had been passed compelling the use of condensers. In compliance with this regulation a majority of the houses introduced an apparatus, based on the plan used at that time by the Agricultural Works at Deptford, England ; that is, the condensing of all aqueous vapors and carrying them into the sewers, and conveying the dry gases under the fire beneath the boilers, where, coming in contact with the bed of live coals, they are destroyed. The experiments made showed that the contact of dry gases from a rendering tank with live coals destroys all offensive odors, the fire of charcoal or coke being superior to the ordinary coal fire.

Those establishments which did not employ the apparatus above referred to, adopted another plan, by which the gases were carbonized and then burned over the fire.

That the regulation in question did much good there is no doubt, as there was a marked improvement in the condition of the packing houses proper within the city.

EARLY STREET IMPROVEMENTS.

Previous to the organization of the Department of Public Works 1861, the efforts made in this branch of public work was unsystematized and spasmodic; there are, therefore, no printed reports of street improvements in the archives of the city prior to that date. It is believed that the following notes of the public improvements made in the early days of Chicago will be of interest now :

The first "road" in Chicago was located in 1831 from the public square to the western county line. In April, 1832, several streets and roads were authorized; among others the first street leading to Lake Michigan was laid out. It then commenced at the end of Water street. The street was laid out fifty feet wide. The viewers believed that "the said road is of public utility, and a convenient passage from the town to the lake." In June, 1832, the County Commissioners "ordered that a road be viewed from the town of Chicago to the Du Page river, and so on to the west line of the county."

By March, 1833, the State road, leading from Chicago to the west bank of the Wabash river, opposite Vincennes, was completed, and during the Spring and Summer of that year various minor roads were laid out. Thus even at this early period Chicago was becoming a road centre. When later, plank roads commenced to be built, Chicago took the lead in the trade of the surrounding country. In August, 1833, in which the town of Chicago was incorporated, one of the first official orders of the Board of Trustees was given to the Town Surveyor to "pitch" South Water street from the United States Reservation to Randolph street, on or before April next, 1834. During July, 1834, the Surveyor was required to grade South Water street so that "water should flow from each cross street into the river." South Water and Lake streets, the two principal thoroughfares of the village at that time, were early turnpiked and graded. Plank sluices were also built across Clark street to carry the drainage to the South branch.

In 1835 the following petition was presented to the Town Trustees :

CHICAGO, July 13, 1835.

Your petitioner respectfully represents to your Honorable Body that he has graded and thrown up La Salle street, between South Water and Lake streets, in front of lots one and two, and begs to be allowed the cost and value of said work, to be deducted from the taxes of the ensuing year.

GURDON S. HUBBARD.

To the Trustees of the Town of Chicago.

The marvelous growth of Chicago is clearly attested by preceding document, as the author of it was until 1888 a hale and active resident in our midst, and has, with many others of our citizens, witnessed Chicago grow from a frontier village to its present important place among the great cities of America.

In the Fall of 1836 Canal street was turnpiked as far north as Kinzie, and Lake street similarly improved as far as Desplaines, and Randolph street from the river to the west line of Section 9.

As late as July 9, 1836, the *American* calls attention to a pool of water on Lake street, corner of La Salle, inhabited by frogs. "It smells strong now, and in a few days will send out a horrible stench." By the Winter of 1836 the leading thoroughfares were turnpiked. In the Spring of 1827 proposals were invited for "clearing, grubbing and grading" Market street, Franklin street, Chicago avenue, La Salle, Clark and Dearborn streets; also Union, Desplaines, Peyton, Canal, Harmon, Hamilton, George, Maria, Webster, Spring, Elizabeth and Catherine (West Fifteenth) streets, and one-half of Division street, making in all fourteen and one-half miles of streets.

In 1842 North Branch street, from Kinzie to Desplaines street, was graded, and in 1844 Lake street was planked from State to Dearborn streets, which is believed to be the commencement of planking the streets.

For several years the work of grading, grubbing, and rudely improving the streets went on, but it was not until 1849 that the authorities commenced to generally plank them. As a rule this work amounted to less than nothing, for when the teams broke up the planks and wet weather came, this primitive pavement was a dangerous and active weapon, flying up in the horses' faces and splashing foot passengers with mud. As late as 1868 relics of the broken plank could be seen on Blue Island avenue, and as late as 1859 West Madison and State streets were laid with this planking.

Prior to 1849 the attention of the citizens had been called to the fruitlessness of using stone pavements upon the streets of Chicago. It did not seem a profitable investment for the city to lay down a pavement which would sink out of sight in one or two years. The experiment of laying plank roads had proved a success in Canada and New York, and accordingly in 1849 the Common Council determined to plank the principal streets of Chicago. In 1849-50 Market, State, South and North Clark, La Salle, Wells, East and West Madison and West Randolph were treated to a coat of this material, nearly three miles of pavements, at a cost of \$31,000.

Soon after commenced a general numbering of the streets. In the Spring of 1848 Clark street was numbered from South Water to Randolph. In July, 1850, the Common Council ordered that North Water, Kinzie and Michigan streets be numbered from the eastern termini to Franklin street, and that Wolcott (now North State), Dearborn, Clark, La Salle and Wells, (now Fifth avenue), numbered from North Water to Ontario; also that the names of these streets be posted up in large letters on each of their corners.

In 1855 the first pavement composed of limestone blocks was laid on South Water street, between Wabash avenue and the tracks of the Illinois Central Railroad. In the following year, Wells street (now Fifth avenue), was macadamized from Van Buren to Congress streets, and cobblestone pavement laid on Lake street from Michigan avenue to the river.

In the Fall of 1856 the first "Nicholson" or pine block pavement was commenced on Wells street (Fifth avenue), between South Water and Lake streets. The work was completed in the Spring of 1857. During the year, cobblestone was laid on State between South Water and Lake, and on Randolph from the river to Clark, and on Washington street from La Salle to Clark.

From this time to 1859, a period of seven years, over fifteen miles of pavement was laid. There is no record showing any pavement to have been laid in 1860, and from 1861 to 1865, a period of five years, 9.69 miles were laid. From 1865 to 1871 little except pine block pavement was laid. In 1875 cedar blocks were substituted for pine, and from that time to the present date have been extensively used.

In 1880 the first compressed asphalt block pavement was laid. Sheet asphalt and granite blocks were laid in 1882.

Up to 1851 fifty miles of plank roads had been built, leading from Chicago to various points north, south and west, at a total cost of \$150,000.

As the railroads centering in Chicago came into general use, affording a new and more desirable system of commercial arteries, the plank roads were abandoned. That these plank roads were not abandoned without a protest, but on the contrary were highly regarded as a means of developing the country, the following communication from the *Chicago Daily Democrat* February 16, 1848, will attest:

Will you be so kind as to allow me to say a few words through your paper, showing the very many advantages our country derived by the introduction of plank roads over that of railroad communication? The former can be brought into every street and alley, to every warehouse and manufactory in our city; in the country all sections are alike benefited by them. They do not enhance one man's property and depress that of another. The farmer can take his produce to market when his time is of little or no value. When a sudden advance in the staples of the country takes place, there is no railroad directory to reap the benefits of it, by refusing to carry only that which they may be interested in. Such have been the operations in a neighboring State. Do railroads give the same facilities for traveling that plank roads do, even to those living by the side of them? Their stations are generally ten or twelve miles apart. They will only take in and put out passengers at these places. Our plank road passengers travel at the rate of ten miles an hour, which is as fast as they are conveyed (and with ten times the safety) on the Michigan Central Railroad. The charges made by the railroad for the transportation of produce are more than it would cost the farmer by plank roads, and very little less than common roads. On the Michigan Central Railroad they charge sixty-two and one-half cents per barrel for flour, fifty cents per hundred pounds for merchandise, between Kalamazoo and Detroit, 140 miles. On a plank road a two-horse team will have three and one-half tons, two and one-half miles per hour,

for ten hours out of fourteen, which experience has proven to be the most economical rate of speed teams with heavy burdens ought to travel. From an examination of the statistics, it would appear that the whole number of teams arriving in our city during the past year was not far from 70,000. Now, in place of the railroad now agitated, construct 300 miles of plank road, divided to the best advantage, say northwest and southwest. This will not cost more than \$500,000 (about what it will cost to build a good railroad to the Fox river), for which the annual receipts for the next ten years could not be less than \$200,000, supposing the average number of teams arriving per annum to be 130,000 (a calculation not large, as the population of Northern Illinois doubles in about six years), which at \$1.50 per team, would give that sum, sufficient to keep the roads in repair, divide thirty per cent. dividends, and when the road is worn out (ten years hence), we would have a city containing 70,000 inhabitants. Then we might talk of a railroad. One of the reasons urged with those in favor of the proposed railroad to Fox river, is that if we don't build one Milwaukee will. The people of that city are not able to build a railroad of any length; if they were, they are not so simple.

This short sketch of Chicago street making in early days gives only a faint conception of the difficulties which beset the pioneers in their courageous efforts to build a city in a morass.

EDUCATIONAL SYSTEM.

The growth of the Educational System of Chicago has kept rapid pace with her other departments of public improvement, and is to-day not excelled by that of any other city in the United States. Her Public School System is indelibly marked with the well merited stamp of approval of the foremost educators of the country, its best and most ennobling feature being the generous manner in which the taxpayers support the public schools, offering free education to any child of school age within the limits of the municipality.

Of the first efforts made for the establishing of schools of any kind in Chicago very little can possibly be known, and even that is mostly traditional as given in personal interviews with old settlers.

It is known, however, that a school was regularly taught here as early as 1816, but how long it was continued is merely a matter of conjecture. There is no record, traditional or otherwise, of any venture of a similar kind prior to 1820.

In 1830 there are well authenticated records of the opening of a school by Stephen Forbes, assisted by his wife—children from the fort and a few others attended this school, which was held in a building near what is now the crossing of Randolph street and Michigan avenue.

By a wise provision of the General Laws, Section Sixteen (16) on each newly-platted Congressional township, as shown by the United States surveys, was set apart for the benefit of public instruction. It so chanced that this Section, or one mile square within the township on which the city of Chicago is located, lay on what is now the business center of the city, and is to-day of fabulous value. It is bounded on the north by Madison street, on the south by Twelfth, on the east by State street and on the west by Halsted street.

This vast property was not judiciously disposed of, for had it been retained until the present time the rentals therefrom would afford a revenue which which would make the school system of Chicago the wealthiest municipal institution of its kind in the world.

It so happened, however, that the mania for speculation in real estate, which prevailed in 1833, induced the authorities to sell the school lands of the State wherever it was possible to do so. The Chicago authorities unfortunately, in the light of present knowledge, pursued this unwise policy and sold the whole section, with the exception of four blocks which were retained, for \$38,619.46, which was placed at ten per cent. interest, payable

semi-annually in advance. The four blocks reserved from the sale were block one (1), bounded by Madison street, Halsted street, Monroe street and by South Union street, extending to Monroe; blocks eighty-seven and eighty-eight, lying between Fifth avenue and the river and between Harrison and Polk streets, and block one hundred and forty-two, bounded by Madison, Dearborn, Monroe and State streets.

The interest derived from the school fund was apportioned among the several teachers in the town, according to the number of their scholars residing in the township.

In justice to the memory of Colonel Richard J. Hamilton, who was School Commissioner in 1833, it should here be stated that the sale of the Chicago School Section was made against his earnest protest. A petition signed by an overwhelming majority of the leading citizens of the place induced him to dispose of the property as has already been stated. The proceeds of the money derived from the sale will hereafter in this paper be alluded to as the "Public School Fund."

The first appropriation from this fund was made for the partial maintenance of a school which had been organized by Miss Chappel and conducted by her, thus recognizing her on the rolls as *the first teacher in the first public school in Chicago*. This school was located on the corner of Washington street and Wabash avenue in the First Presbyterian church building. Mr. Grenville T. Sproat, on December 17, 1833, opened a school in a small church building belonging to the First Baptist church on South Water street near Franklin street, and conducted it for some time as a subscription or private school, but upon applying for and receiving an appropriation from the Public School Fund, his school was thereby transformed into a public school.

Owing to the loss of the one record kept from 1833 to 1837, that early period can be alluded to but vaguely.

In 1835 the school founded by Mr. Sproat was committed to the care of James McClellan, assisted by Miss Warren. It was in this year that the first building, erected specifically for school purposes, was built in Chicago by John S. Wright at his own expense. It was situated on Clark street just south of Lake street. On September 19, 1835, a call was issued for the purpose of organizing the town into school districts, which resulted in dividing the town into four districts. There were at this time three public and four private schools in town.

The incorporation of Chicago as a city on March 4, 1837, marks an epoch in the history of the schools, for their management, excepting the control of the funds, vested in the Common Council of the city by the provisions of the city charter.

The first Board of Inspectors was elected by the Council on May 12, 1837. The records from that period up to 1840 are exceedingly vague and

unsatisfactory. There was no uniform action in the management of the schools in the various districts, each district evidently conducting its school affairs in its own way. There were seven districts, but there is no evidence in existence recording the boundaries of these districts.

From the reports of the inspectors for the year ending December 31, 1843, it would appear that there were eight schools in operation, with an attendance of five hundred and eighty-eight pupils.

The public school building erected in 1845, on Madison street, opposite McVicker's theater, received the name of Dearborn School, in 1858. It was the first permanent school building built in Chicago, erected at a cost of \$7,500. In those days, that was considered an uncalled for sum of money to be used in the erection of one school building. Ira Millimore was largely instrumental in having the structure erected, and in consequence it was often afterward pointed out as "Millimore's folly." Mayor Garrett, in his inaugural address in 1845, also looked upon the building as far beyond Chicago's needs, and recommended that it either be sold or converted into a lunatic asylum. Subsequent events, however, in the unprecedented growth of Chicago proved that the structure was not only not beyond the city's needs, but rather inadequate, as it was torn down more than a score of years ago to give place to a larger and more pretentious edifice. This was never built, however, on account of the great fire of 1871, which changed the plan of the School Board in that as in many instances about that time.

The close of the school year in 1853 saw an enrollment of over three thousand pupils in the public schools, at a cost for maintenance of \$12,129.

In the year 1854, on the sixth day of March, John C. Dore, principal of the Boylston Grammar School, Boston, was elected Superintendent of Schools, at a salary of \$1,500 per annum. It was under his management that the work of classifying and grading the schools was effected.

In 1855 the Common Council decided in favor of the erection of a High School, and an ordinance was passed by that body to that effect, and the site for the proposed structure was chosen on block one (1) of School Section, which was one of the blocks reserved at the sale of school lands in 1833, and it is still occupied by the High School Building on Monroe street near Halsted. Two minor schools were also added to the list in 1855, making the number nine, exclusive of the High School. Fifty-two teachers were employed, and the number of pupils enrolled were six thousand eight hundred and twenty-six. Superintendent Dore resigned his position in March, 1856, and was succeeded by W. H. Wells, Principal of the Normal School at Westfield, Massachusetts.

Mr. Wells made a careful examination of the statistics of the city, and concluded that there were fully three thousand children of school age in the city who were utterly destitute of school instruction. In other words, liberal

as had been the conduct of the Council, the average daily attendance of children in the public schools was almost equaled by the number who did not avail themselves of the educational privileges offered. Schools were added by the Council as rapidly as circumstances would permit, and it was yet impossible to accommodate with seats the pupils who desired admission. The demand was far in excess of the supply. The whole number of pupils enrolled in 1857 was ten thousand six hundred and thirty-six.

It was by an Act of February 16, 1857, that the Board of School Trustees was abolished, and its name changed to that of the Board of Education, with fifteen members appointed by the Mayor, with the consent of the Common Council, for terms of one, two and three years. This Board was, by the Council, invested with the power to supervise all bills against the School Tax Fund for improvements, repairs and school supplies.

By Legislative Act of February 15, 1865, one hundred thousand dollars worth of school construction bonds were authorized. Within the next two years the Council ordered \$75,000 of this amount to be issued. In January, 1856, by the same authority, a loan not exceeding \$80,000 was made and used. Previous to 1865 the money for erecting and for the repairing of schools came from the School Tax fund. Several large amounts of School Bonds were issued between 1865 and 1871, the year of the great fire, from which date the archives of the Board of Education show complete records of the extension of the School System to meet the requirements of a city of nearly one million and a quarter of inhabitants.

No notice has been taken in this paper of the innumerable private schools and colleges with which our city is blessed.

The School Census report for 1890, however, reveals the fact that in the city of Chicago there are two hundred and eighty-six public schools with one hundred and nineteen thousand six hundred and two pupils and two thousand nine hundred and twenty teachers, and that of the private schools of all kinds, including kindergartens, business colleges, colleges, training schools and parochial schools, and schools in connection with the various religious denominations, there are three hundred and forty-one schools, with one thousand eight hundred and fifty-four teachers and sixty-five thousand and sixteen pupils.

These statistics are amazing when viewed in comparison with the solitary school of Miss Chappel, in 1833, with an average attendance of about twenty-five pupils. The difference in time between the two eras is only fifty-seven years, or a trifle over half a century.

SHORT HISTORY OF THE PUBLIC WATER SYSTEM OF THE CITY OF CHICAGO.

In the Annual Report of the Department of Public Works for the year 1882, pages forty-two to forty-four, both inclusive, we find the following passages:

"EARLY PUBLIC WATER SUPPLY.

"The earliest effort, of which there is any record, to provide a public water supply for the citizens of Chicago was November 10, 1834, when the Board of Trustees paid \$95.50 for the digging of a well in Kinzie's Addition. I was informed by the Hon. Julian S. Rumsey, who has resided in Chicago nearly fifty years, that this well was located at what is now the intersection of Cass and Michigan streets.

"The settlers, however, soon realized that the lake was the most suitable source of water, and for some years private enterprise reaped a financial harvest in operating water carts for the supply of lake water to the citizens. This improved mode of procuring water was soon superseded by a more substantial and convenient means. In January, 1836, the State Legislature passed a law incorporating the Chicago Hydraulic Company, and on March 10th following, an organization was effected as follows: George W. Dole, President (Mr. Dole was also, from 1854 to date of his death in 1859, one of the Board of Commissioners having control of the present water supply); Gurdon S. Hubbard (still residing in this city), David Hunter, Gholson Kircheval and William Forsyth constituted the Board of Directors; Edward W. Casey was secretary and James H. Campbell, R. A. Kinzie and Solomon Wells were the other incorporators.

"The Act of Incorporation contained about the same conditions for the preservation of the water from pollution and the protection of the works as are now in force. The charter was to continue in force for a period of seventy (70) years. The company had four years from the passage of the Act (January 18, 1836), in which to commence the construction of the necessary work. The panic of 1837 so interfered with the affairs of the new company, that the work did not fairly commence until 1840. The works were put in operation in the Spring of 1842, having a reservoir, about two miles of wood pipe and a twenty-five horse power engine drawing water from the lake. The cost of the plant at that time was about \$24,000.

"In December, 1841, the City Council contracted with the Hydraulic Company to supply the city with water for the extinguishment of fires. The pump-house was located at the corner of Lake street and Michigan avenue, supplying but a very small portion of the South and West Divisions of the city. There was no supply from this source to the North Division. At least four-fifths of the then territorial limits of the city was supplied with water

ERECTED 1853

SINGLE ENGINE.

Capacity, $7\frac{1}{4}$ Million Gallons in 24 Hours.

Steam Cyl. 44-in. Diam. 9-ft. Stroke.

Bucket — Water Pumps 34-in. Diam. 5-ft. 6-in. Stroke.

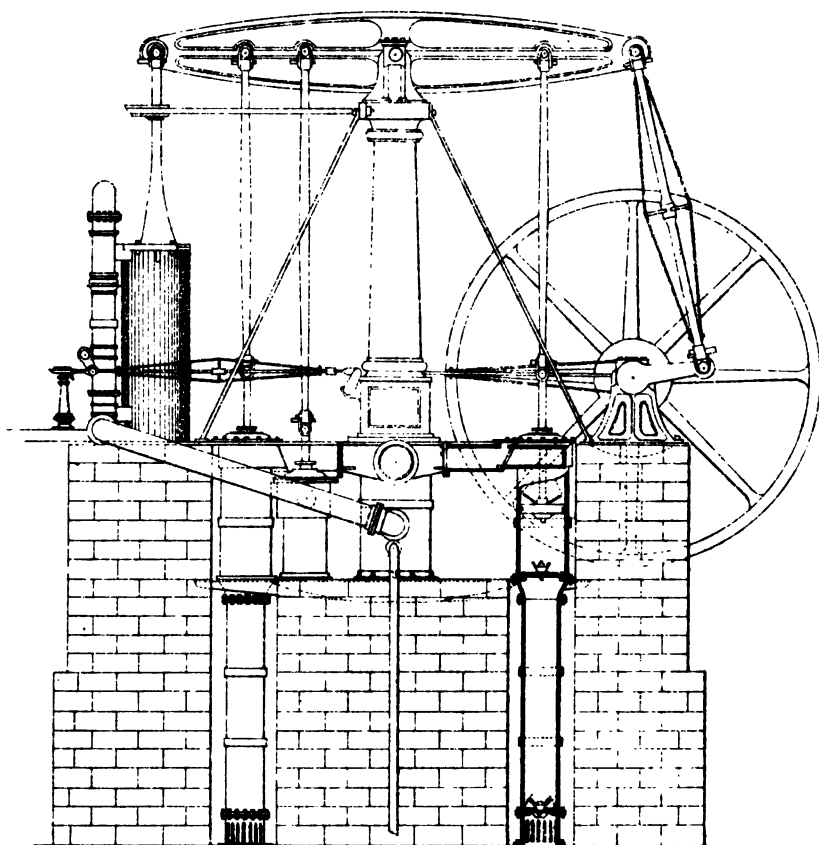
Length of Working Beam 30 ft.

Weight " " " 9 Tons.

Diameter of Fly Wheel 24 ft.

Weight " " " 12 Tons.

Cost of Engine & Boiler, \$24,500.00.



Scale of Feet



for domestic and other purposes from the river, or by the 'water-cart system' from the lake. The works of the old Hydraulic Company were operated with varying success, until the Act of the Legislature of February 15, 1851, providing for the present works. At the regular election held March 2, of the four thousand four hundred and forty-five persons voting at that time on the question of a general water supply, five hundred and thirteen votes were cast against the measure, and one thousand two hundred and forty-four silent on the question.

"Considerable sparring ensued between the old company and the city as to rights, purchases, etc., but the several points at issue were finally compromised and settled, and the new works commenced in 1852. Their progress and success from that time to the present is a matter of record made annually, much of which has been written by the present writer, who has had charge of the works since their commencement—a period of thirty years.

"Respectfully,

"DE WITT C. CREGIER,

"Commissioner of Public Works."

The Board of Water Commissioners was intrusted with the administration of water works affairs from 1852 to 1861.

The oldest and largest pumping station in the city, with the origin and growth of which the remarkable official career of the writer of the above passage, who now fills the mayoralty chair, has been closely connected, is the North Side pumping station, situated at the foot of Chicago avenue. Cuts of all the engines making up the station as it is to-day, are given on Plates I, II, III, IV and VI.

The engine now designated as "53" was operated for the first time on December 16, 1853. It has a capacity of eight million gallons every twenty-four hours. The water was taken from an inlet basin on the lake shore, separated from the lake by a semi-circular breakwater with an opening to the south-east, and was distributed through three reservoirs serving the three divisions of the city, and situated, respectively, at La Salle and Adams streets; Chicago avenue and Sedgwick street, and Morgan and Monroe streets. The first two were built in 1853 and the latter in 1854, and each held about two or three days' supply. The first iron distribution pipe was laid in Clark street in 1852, and was four inches in diameter.

On May 29, 1856, a contract was entered into for a second engine, to have a capacity of twelve million gallons per twenty-four hours. This engine is now known as the "57" and is represented on Plate II; it was operated for the first time in July, 1857.

In the report of the Board of Water Commissioners for the year ending March 31, 1858, we find the statement that, in order to keep the three reservoirs filled, it was necessary to pump during about twelve and one-half hours each day.

On May 6, 1861 "The Board of Public Works" was organized and assumed the functions of the old, "Board of Water Commissioners." The Chief Engineer was E. S. Chesbrough, to whom the city is so largely indebted for rational progress in her Public Works system.

In July, 1867, the third engine was put on duty; it pumped its first water from the first lake tunnel. It has a capacity of eighteen million gallons per twenty-four hours, and is now known as the "87." (See Plate III.)

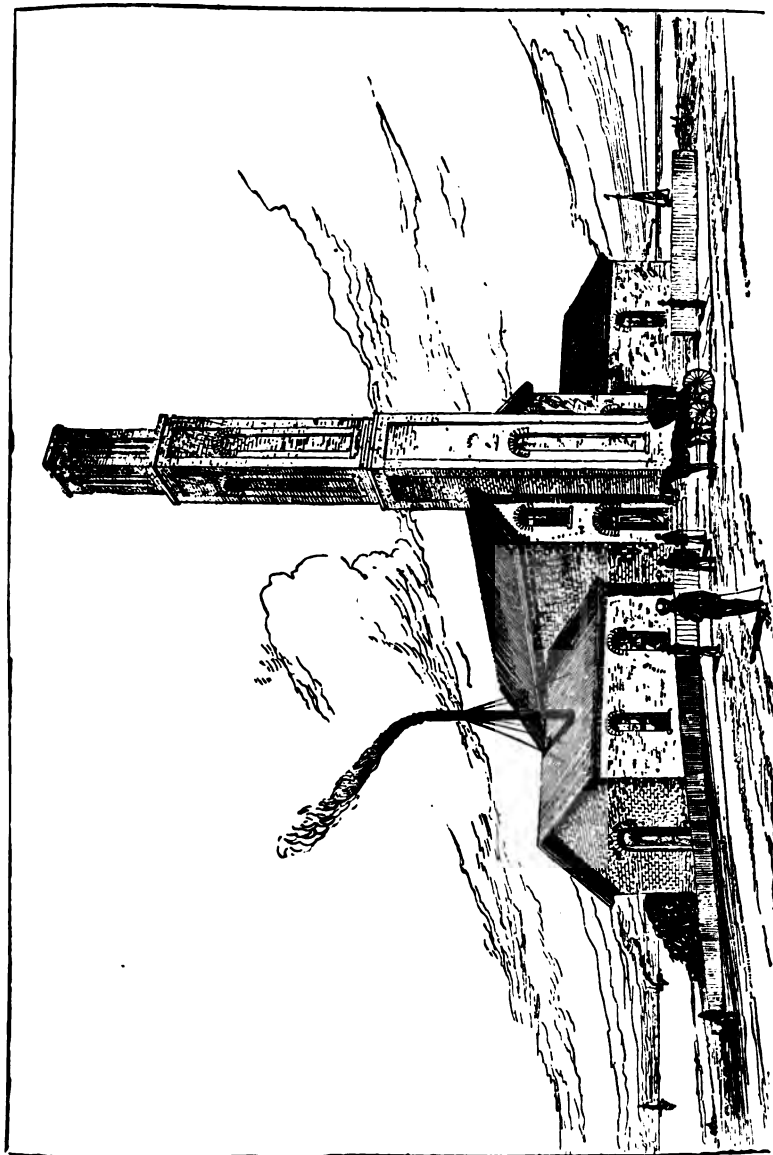
The event which exerted the greatest influence, by far, on the development of the water supply system, not alone in Chicago, but also of other large lake cities, was the successful completion of the first lake tunnel. We might, therefore, appropriately cite in full the description of this work given in the Eighth Annual Report of Chief Engineer E. S. Chesbrough, to the Board of Public Works, for the year ending December 31, 1876, on pages 83 to 103, both inclusive:

"In 1851, when the population was about 35,000, a charter having been given to the city, the present works were commenced. Under the directions of the Board of Water Commissioners, John B. Turner, A. S. Sherman and H. G. Loomis, the Pumping Works were located on the lake shore on the North side of the Chicago river. In recommending this site the Chief Engineer, Mr. J. McAlpine, said: 'It is very questionable whether the small quantity of water which is discharged from the river would affect the quality of the water in the lake at a point one and one-half mile south. From the consideration which I have given the subject, I am of the opinion that there is no perceptible difference between the quality of the water in the lake above the pier, and at the place one and one-half miles south of the river, on which the estimates have been predicated.'

"The works were put in operation in February, 1854. They consisted of one reservoir, containing about half a million gallons, and eight and three-quarters miles of iron pipes, besides the Pumping Works. The population at this time was about seventy thousand.

"The increased growth of the city after that time, and the introduction of sewerage, together with the establishment of packing houses, distilleries, etc., caused such a change in the quantity of filth flowing into the lake that complaints began to be made of impurity and offensiveness occasionally, in the supply from the Pumping Works. In 1869 one of the Water Commissioners, Mr. Edward Hamilton, proposed to sink a wrought-iron pipe five feet in diameter one mile out into the lake to obtain the supply beyond the effect of the river.

"This project was referred to the Chief Engineer of the Board of Sewerage Commissioners, to examine and report upon, with the request 'that he also take under consideration and report on the matter of erecting additional pumping works in such locality as shall secure a supply of pure water.' The report made in compliance with the foregoing request did not recommend the immediate adoption of any plan, but discussed various projects. Among others that of a tunnel was suggested, but it was thought best to defer the whole subject until further examination and analysis could be made, in the hope that much of the complaint against the water supply might be imaginary.



ORIGINAL WATER WORKS.

"What, however, was at first apparent only to the most sensitive organizations, soon grew evident to all, and in the course of two or three years more, the water supply became occasionally very offensive, both to the taste and smell. A remedy for this state of things could no longer be neglected.

"The Board of Public Works, which was created in 1861, discussed the various projects that had been suggested, and made experiments with filtering, which, however, they soon saw would not answer. The Engineer of the Board, after much doubt and careful examination of the whole subject, became more inclined to the tunnel plan than any other, as combining greater directness to the nearest inexhaustible supply of pure water, with permanency of structure and ease of maintenance. The possibility, and in the estimation of many, the probability, of meeting insuperable difficulties in the nature of the soil, or storms, or ice on the lake was fully considered. One by one the objections appeared to be overcome, either by providing against them, or discovering that they had no real foundation. The plan, when so far worked out as to show how the tunnel might be constructed, was submitted to different engineers, among the number, Colonel J. D. Graham, U. S. Engineer, Mr. John B. Jervis, Captain William H. Swift, and L. H. Clarke, Chief Engineer Illinois Central Railroad, all of whom expressed their belief in the practicability of the scheme. Mr. Benjamin Carpenter, first President of the Board of Public Works, supported the plan warmly from the time it was explained to him; and the Honorable William B. Ogden, though not a member of the Board, offered, very early in the history of the project, to advocate it publicly if it should be necessary. The other members of the First Board, Messrs. J. G. Gindele and F. Letz, though very cautious and somewhat doubtful at first, became satisfied with the general features of the plan. In the meanwhile, in consequence of legislative action, a new Board was chosen, consisting of the two last named gentlemen, Mr. O. J. Rose and Honorable F. C. Sherman, the Mayor, who was *ex-officio* a member.

"At the suggestion of Mr. Sherman, more thorough examinations of the soil, consisting of borings every five hundred feet were made. These fully confirmed what was previously inferred from the known character of the formation underlying the northeastern portion of the city, and extending out under the lake. The whole Board were now prepared to recommend the project of the City Council.

"A committee was appointed by the latter body to consider the subject. This committee consisted of Messrs. C. L. Woodman, J. A. Hahn and F. C. Brown, Aldermen; F. C. Sherman, Mayor; and S. S. Hayes, Comptroller, some of whom were known to have strong doubts with regard to the propriety of undertaking such a work; but the result of their investigations was a unanimous report in its favor. The City Council then passed the necessary ordinances, and the Board advertised the work for letting.

"The opening of the proposals was looked to with great interest, as it was feared that no responsible parties would offer to take the work for less than millions, instead of only about three hundred thousand dollars, the engineer's estimate, in which not only the public generally, but the Board of Public Works themselves, had no great confidence.

"The result was both surprising and gratifying to the Board. Seven bids were received, ranging in amount from \$239,548 to \$1,056,000. Owing to failure to appear with sureties at the proper time, and to objectionable conditions, the two lowest bids were rejected.

ERECTED 1857.

SINGLE ENGINE.

Capacity, 13 Million Gallons in 24 Hours.

Steam Cyl. 60-in. Diam. 10-ft. Stroke.

Bucket and Plunger — Water Pumps 40-in. Diam. 6 ft. 3-in. Stroke.

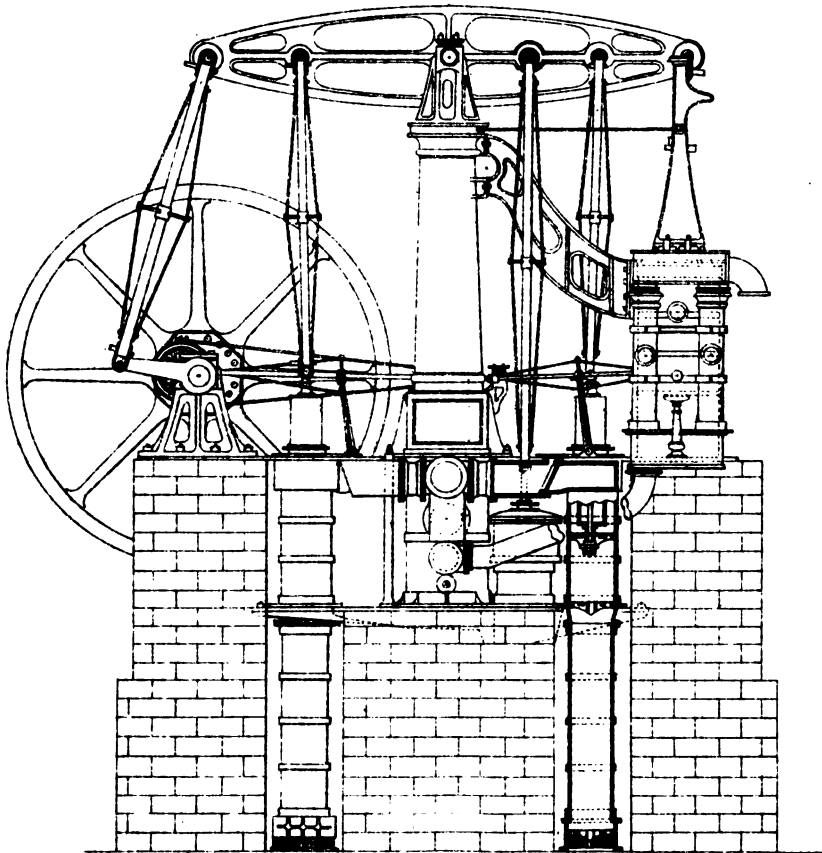
Length of Working Beam, 30 ft.

Weight " " " 16 Tons.

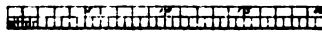
Diameter of Fly Wheel 24 ft.

Weight " " " 16 Tons.

Cost, Engine and Two Boilers, \$59,000.00.



Scale of Feet.



"On the twentieth of October, 1863, after considerable inquiry relative to the ability and qualification of the parties, and a visit of the city legal adviser, Benjamin F. Ayer, Esq., to Harrisburg, Pennsylvania, to ascertain the standing and the pecuniary responsibility of the sureties offered, a contract was entered into for the execution of the work with Messrs. J. J. Dull and James Gowan, of Pennsylvania. To this proceeding the City Council had given their authority by an ordinance dated the fifth of the same month.

"On the evening before the date of the contract, an ordinance was submitted to the City Council to repeal the authority previously given to the Board of Public Works to enter into contract for the tunnel. The preamble of this ordinance set forth that the construction of the proposed crib would be a permanent obstruction to navigation. The Board of Public Works, to whom this subject was referred, stated in their answer that 'the opinion of Mr. Ayer,' submitted herewith, shows that the city has clearly the right to build the piers; that Congress, by its paramount authority, may declare the same unlawful structures, and authorize the courts to remove them, but that all previous court decisions established that before being ordered removed, the piers must first be shown to be a serious obstruction to the lake navigation. The piers, with their beacon lights, will, we think, be helps and not hinderances to navigation—helps to show the sailor his position while in safe waters.

"The Board has, however, already taken steps to procure the sanction of Congress to the erection of the piers; but if it comes to the worst—that is, if the structures are declared unlawful, and the piers are proved to be serious obstructions to lake navigation, and the courts order the city to remove them—the Board will remove them to such a depth below the surface of the lake that they cannot endanger navigation, as has been contemplated from the first, and as may be done at any rate. The repealing ordinance was not passed.

"The plan of the work as thus determined upon, consisted of a land shaft at the western and a lake shaft at the eastern extremity, to be permanent, and three intermediate lake shafts for expediting the construction, to be removed on the completion of the work. The tunnel proper to be two miles in length, beginning on the lake shore near the Pumping Works, and extending out in an east northeasterly direction. The shafts to be protected by cribs, or hollow pentagonal breakwaters, from storms, vessels and ice.

"The horizontal diameter of the tunnel was fixed at five feet, and the vertical two inches greater, for convenience in drawing the centers during construction. This size was determined upon for two reasons: *First*—It was sufficient to deliver a supply for one million of inhabitants at the rate of fifty gallons a day for each person, the average quantity used at that time. *Second*—Experience in Europe had shown, that while it was possible to make small tunnels in the most troublesome ground, the attempt to make large ones had sometimes failed, and at others had been attended with enormous difficulties. This was particularly the case in works of the kind described by Minard in his *Cours de Construction*, pages two hundred and eighty-four and two hundred and eighty-five, and in the earlier as well as in the later efforts to construct a tunnel under the Thames.

"Although there was every reason to expect easy work here, there was a possibility of meeting the deposits of quick-sand or other soft, wet material. In order to remove as far as practicable, every doubt of the final success

of the work, this small size was adopted, in the full conviction that whenever it should prove insufficient to supply the demand upon it, the population and wealth of the city would be abundantly able to construct another, and if necessary, a larger one.

"The work was commenced at the land shaft on the seventeenth of March, 1864, the delay since the date of the contract having been caused by waiting for the cast iron cylinders, which had been ordered by the Board for the first thirty feet, instead of the brick shaft, as originally intended.

"The cylinders are nine feet internal diameter, one and one half inches thick, and in three sections, each ten feet long. The bottom of the lowest section has a cutting edge. The sections were united by internal flanges, bolts and rust joints. The top flange of the cylinder was fitted to receive an air lock, in case that should have proved necessary in the prosecution of the work.

"It was intended originally to make the lining of the land shaft of brick clear to the top, but the Board feared trouble from the quick sand, which extended down about fourteen feet from the surface, and particularly as the inlet through which the city was supplied was not only in this quicksand, but very near this shaft. Owing to the want of suitable pumps, there was unexpected delay in sinking the cylinders, but as soon as the clay had been penetrated a few feet, all serious difficulty ended, and the remainder of the shaft was sunk to its proper depth through clay of various degrees of tenacity, from very soft, near the top, to indurated, near the bottom. Before reaching the bottom, the contractors requested the Board to allow them to go deeper than the plan called for, in order to have a thicker roof under the bed of the lake; but, on meeting with water and gas, they concluded that a greater depth would only bring them into greater difficulties, and were content to carry out the original design.

"The shaft was walled up eight feet in diameter, with masonry twelve inches thick, to the bottom of the cast iron, the inside of which was laid with masonry to the top of the lowest section. At the bottom of the shaft there was a sump six feet below the bottom of the tunnel. This had to be emptied generally twice a day during the whole progress of the work, as the quantity of water discharged from a spring there emptied very uniform.

"From the bottom of the shaft a drift, at first only intended to be temporary, was made about fifty feet long, westward, with a chamber at the end, with fixtures for mounting a transit. The regular tunnel work was commenced May 26, 1864.

"The entrance to the tunnel was made six feet in diameter and tapered down to five feet in a distance of twenty feet. The masonry on this portion was made of three shells of brickwork, each four inches thick, with cement joints half an inch thick between. The rest of the tunnel proper was lined with two shells of brickwork. It was intended at first to fill the cavities around the outside of the brickwork with well tamped earth, but it was soon found impossible to get this done in a satisfactory manner. For this reason, solid masonry was almost immediately substituted for the tamped earth. The upper arch was built on a ribbed center of boiler iron, which diminished the open space inside of the tunnel only four and one-quarter inches, and thus allowed the cars which conveyed away the earth to go up to the face of the excavation, usually kept from ten to twenty feet ahead of masonry. The iron center was thirty inches long in the direction of the tunnel. About two feet in length of masonry was usually laid at a time, and, as a rule, it was

found safe to strike the center within fifteen minutes after the arch was keyed. At first it was supposed necessary to excavate nearly a foot above the top of the brickwork in order to give the masons room to build the upper arch, but very soon it was found that they could build it perfectly well generally without making the excavation any larger than the space required for the brickwork. This was done by driving the last four or five top courses of brick into well tempered cement mortar first thrown into the cavity. The driving of the bricks effectually filled up the spaces which could not otherwise have been reached by hand. The ends of the masonry were left 'toothing,' and thus furnished a guide in driving the bricks on the upper arch.

"The lower arch was built by templets or patterns, as ordinary sewers are, and usually kept some six feet in advance of the upper arch, to allow of greater convenience in loading the cars with earth, which the miners had to keep at some distance behind them, and which the shovelers could not throw into the cars very well when they stood under the brick work.

"The excavation was, generally, through stiff, blue clay, with the irregularities of character peculiar to the drift. It very seldom required bracing, when not left to support itself more than thirty-six hours. Sometimes sand pockets were met, and when those were over the upper arch, they would empty themselves partly, leaving cavities to be filled with masonry, but these were seldom of much importance. Sometimes small bodies of quick-sand were encountered, but they occurred only in pockets and not in strata, and therefore gave no serious trouble. Sometimes the clay would be soft enough for a miner to run his arm into it, but, with the exception of requiring a little more "trimming" for the masonry, this gave no trouble. Sometimes boulders, weighing several hundred pounds, were met, and interfered a little with the regular progress of the work but seldom more than a little.

"The greatest and most dangerous difficulty met with, was one that was not anticipated at first, and that was inflammable and explosive gas.

"With trifling exceptions, this work was prosecuted day and night by means of two sets of miners and one of masons, working eight hours each in every twenty-four, for six days in the week, till the sixteenth of October, when a point about seven hundred and fifty feet from the center of the shaft was reached. Here it was determined to make two temporary chambers, one on each side of the tunnel, with which they were to be connected by small and short openings. It took about one week to construct these chambers and connections, all of which were supported by timbers and planks. In the tunnel and at the connection between the chambers a turn-table was placed.

"This arrangement permitted not only the passage of cars by each other, but also the making up of trains, which soon became an absolute necessity for the economical and rapid execution of the work. By means of such chambers it was practicable to carry on the work a mile or more out under the lake as fast as could be done near the bottom of the land shaft; in fact, the progress of upwards of a mile out was really greater than it was near the shore, owing to the greater skill and experience acquired on the way.

"The character of the work continued throughout very much the same. The greatest progress made during any one week was ninety-three feet. Only once was a boulder so large as to require blasting met with. There was a little nervousness as to the effect of a blast under the lake, but it caused no serious disturbance, either of the ground or the masonry.

"The ventilation of the tunnel was effected by means of tin pipes, through which the foul air was drawn out and fresh air consequently drawn in through the main opening.

"To determine the position of the lake shaft and the line of the tunnel much pains were taken to establish an accurate base on the shore for the purposes of triangulation. Owing to the buildings in the way, this was no easy task.

"To aid in placing the lake shaft beyond all doubt in the line of the tunnel, a six-inch tube was sunk two hundred and eighty feet eastward of the land shaft, after the masonry had been carried beyond that point. By plumbing up through the tube, "a range" of great accuracy for such a purpose was obtained. As soon as the work had been carried so far that the sperm candles used in the alignment could not be seen at the "face" of the work, the center line was produced from point to point, by means of a goniometer with two telescopes, which, when in perfect adjustment, could be made to reverse on the same point, which was thus proved to be in a straight line with the instrument and the "back sight." All of the operations, as well as those necessary forelines and levels, at the crib afterwards, were under the immediate direction of Mr. William H. Clarke, the principal Assistant City Engineer. The final and very satisfactory result with regard to lines and levels, mentioned hereafter, prove the great care and accuracy with which Mr. Clarke conducted his operations.

"It was deemed a matter of great importance on the part of the Board of Public Works, to have a representative constantly in the tunnel, not only to see that the work was done properly, but to take prompt measures for its safety in case of accident or threatened danger.

"Mr. Herman Kroeschell, an educated and experienced mining engineer, was principal inspector of mining, and directed the "trimming" shift, which worked the eight hours immediately before the masons commenced. He set the "patterns" by which the masonry was built, producing for this purpose, the lines and levels given by the engineer in charge, by means of plummets, ranges, with sperm candles and spirit levels. His shift consisted usually, of four miners and four other men, who at first pushed the loaded cars to and from the shaft, but afterward to and from the nearest chambers, from which they were hauled by mules, to the shaft and back again, either empty or loaded with brick, cement or sand.

"The next, or mason's shift, was under the constant inspection of Mr. Edward Everett, employed for years previously in this city as a very efficient inspector of sewers. The average length of masonry laid was twelve feet a day, for the entire distance, but for the first two thousand feet the greatest progress scarcely equaled this rate. Afterward it sometimes reached fifteen and a third feet a day; but this latter rate could only be attained by putting on a couple of miners during the shift. The earth they excavated could not be removed from the tunnel while the masons were in, and consequently delayed, to some extent, the operations of the next or principal mining shift; but this course enabled the contractors to advance the whole work two feet more a day than they could have done without it.

"The principal mining shift was under the inspection of Mr. George Dewar, an experienced miner. His chief duties were to keep the excavation within the proper lines, and to watch carefully for the approach of bad ground, so as to be ready with bracing, or to take any other course the emergency might require.

"Mr. Dewer's health failed during the progress of the work, and he was succeeded by Mr. Edward Offermann, who continued till the tunnel was completed. This shift consisted of four miners and four pushers.

"Preparations for commencing operations at the outer end of the tunnel were early made, but owing to disappointments of the contractors in getting the necessary timber of the crib, and other delays, the foundation of the outer and only one it was found necessary to build, were not laid until May, 1864. This was done on the north side of the river, about eight hundred feet west of the light-house. The dimensions of the crib, as required by the specifications, are fifty-eight feet, horizontal measurement, on each of the five sides, and forty feet high. The inner portion, or well, has sides parallel with the outer ones and twenty-two feet long each, leaving the distance between the inner and outer faces of the crib, or thickness of the breakwater, twenty five feet. The breakwater was built on a flooring of twelve-inch white pine timber, laid close together. The outer and inner vertical faces and the middle wall between them were all of solid, twelve-inch white timber, except the upper ten feet of the outside, which was of white oak, to withstand better the action of ice.

"Across the angles of the outer and middle walls were placed brace walls, about ten feet long, of solid twelve-inch timber. The middle wall on each side of the crib was continued straight through to the outside wall. Connecting the outer and inner walls, and passing through the middle wall, were cross ties of twelve-inch timber, placed horizontally about nine feet and vertically one foot apart. The ends of all the timbers, where they passed through the outer and inner walls, were dovetailed and notched half and half into the timbers of the middle wall. All of the timbers used were carefully inspected and well jointed, which was mostly done by hewing, though nearly all of it was first sawed. It was found impossible, however, to get sawed timber of perfectly uniform dimensions. The floor timbers were laid on ground timbers placed directly under the outer, middle and inner walls of the crib. Round, one and one-half inch bolts, thirty-six inches long, with large washers at the bottom, were placed vertically four feet apart, to hold the ground and floor timbers firmly to the first two courses of wall timbers above the flooring. All of the wall timbers are fastened to each other by one and one-quarter inch square bolts, thirty-four inches long, pointed and driven somewhat slanting into one and one-quarter inch auger holes, about five feet apart. The slant was given in opposite directions to the bolts nearest each other, to avoid the possibility of their being drawn out by the buoyancy of the timber, an accident which once occurred to a somewhat similar structure in the West.

"The rectangular openings, each four feet wide and five feet high, were made through the breakwater at different depths below the surface of the lake, so that water could be drawn from near the bottom, middle or top, as future experience might show to be best. These openings and wells, four feet square, from them to the top of the breakwater, were timbered around in the same careful manner as the rest of the crib. Each well was provided on its inner face with slides for a temporary gate to cut off the water whenever thought necessary.

"The floor and walls of the crib were all carefully calked. The interior of the breakwater was divided into seven water-tight compartments, made so by the calking already mentioned, and 'matched sheathing' between

the walls. The object of these water-tight compartments was to make it easy to build solid masonry in the whole of the breakwater at any time within the course of a few years, if it should be thought best.

"The whole of the outside surfaces of the outer and inner walls were sheeted with two-inch pine plank, carefully jointed, placed vertically, and spiked on. Instead of pine, three-inch white oak was used for the upper portion of the outside, to resist the ice. The upper ten feet of each outside corner was protected by angle irons, extending each way two feet, and one inch thick, and firmly fastened by two-inch round bolts. From the bottom to the top of the crib, and into which the ends of the angle irons were let, there were ten pieces of white oak, five by fourteen inches, fastened by every two feet to the middle wall, with two-inch round bolts. Similar pieces, three by twelve inches, thirty-nine feet long, reaching from the top of the crib to the flooring, were fastened by the same bolts to the inside of the middle wall. It will thus be seen that apparently excessive care was taken to make the crib strong, but subsequent experience showed that this care was none too great.

"The crib, when built, was in a horizontal position. In order to launch it, it was raised by screws and inclined at an angle of one in twelve towards the water. Seven ways were placed under it, and extended out sixty-four feet into the river, on trestle work. The river, portion of the ways, gave a great deal of trouble on account of the uneven and stony character of the bottom, and accidents caused by passing vessels. Everything being ready, the launch took place on the twenty-fourth day of July, 1865, when the crib glided, without accident or delay, gracefully into the water, in the presence of a large number of spectators.

"Immediately after the launch the contractors towed the crib out to its position in the lake. As soon as the bar was passed three small gates near the bottom of the crib were opened, and the draft of water, which at first was but a little over eight feet, increased soon after reaching the anchoring ground to twenty-one feet. A mooring screw, opposite the intended position of each angle of the crib, had been placed under the direction of Mr. Clarke. To each mooring screw a one and one-half inch chain cable was attached, and the loose end of the chain fastened to a buoy. Unfortunately, lake propellers had destroyed three of these buoys, and it was thought most expedient to substitute for the sunken chains ordinary anchors and hemp cables. As soon as the crib was brought near its position, the work of filling with loose rubble was commenced. Very soon the 'crib got out of trim,' and one corner of it rested on one of the low bars peculiar to the lake at this distance from the shore. After some time had been lost in vain efforts to get the crib righted and into its exact position, the Board became alarmed for its safety, in case a severe storm should arise, and directed that no expense be spared that might seem necessary to the engineer to secure it with the utmost despatch. A wrecking pump was at once employed. By means of this sufficient water was pumped in or out of the crib, as occasion required, to right it. The partitions between the compartments failed, and it was a matter of rejoicing that they did, for otherwise the removal of the wrecking pump from one compartment to another could not have been made in time. Three powerful tugs were hired, which, by the aid of sufficient tackle, finally towed the crib to its exact position.

"Immediately the contractors resumed the operation of filling the crib with stone, but very soon after a violent storm set in and drove the vessels

ERECTED 1867.

DOUBLE ENGINE.

Capacity, 18 Million Gallons in 24 Hours.

Steam Cyl. 44-in. Diam. 8-ft. Stroke.

Double Acting — Water Pumps 28-in. Diam. 8-ft. Strokes.

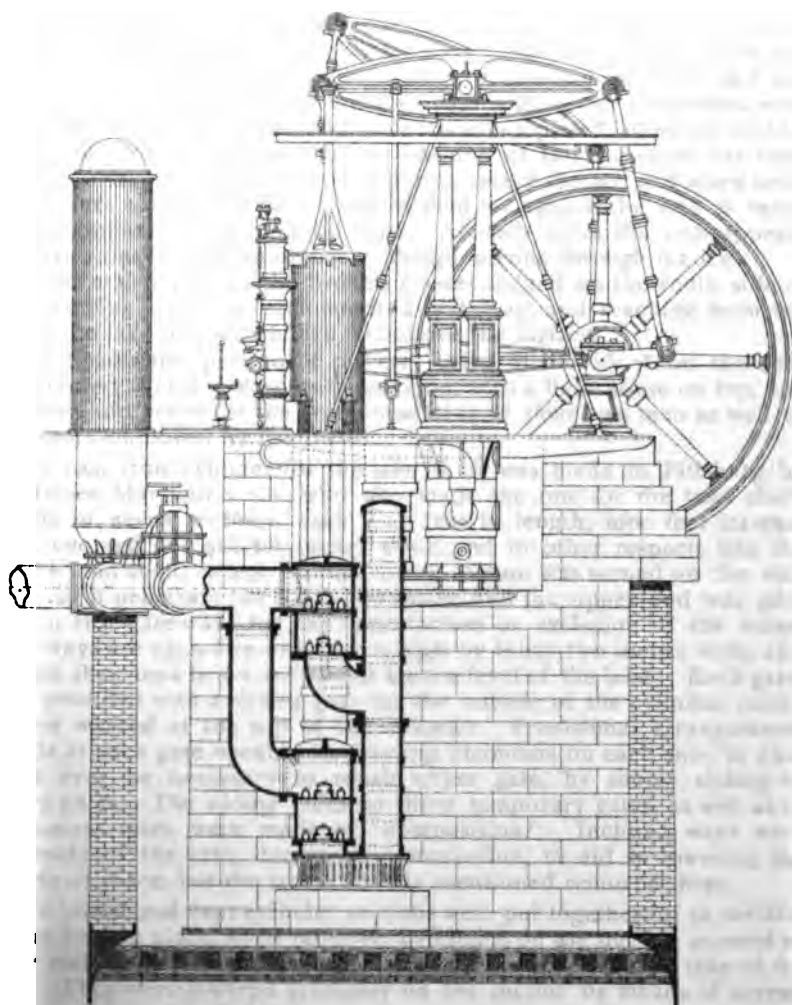
Length of Working Beams, Each 18 ft.

Weight " " " " 7 Tons.

Diameter of Fly Wheel 24 ft.

Weight " " " 24 Tons.

Cost, with One Boiler, \$112,500.00.



Scale of Feet



loaded with stone into the harbor. This storm continued for three days, and threatened, before it abated, to do serious, if not fatal, injury to the crib. In order to hold it in its position as firmly as possible, the wrecking pump was kept at work to fill it with water, the stone thrown in previously not being sufficient to hold it down. During the height of the storm, every wave caused a perceptible rocking of the crib. The angle joints of the inner and middle walls began to separate, and for a time caused intense anxiety. When the storm was over, two of the inner angle joints had parted an inch on top, and the entire crib had worked, against wind and waves, thirteen feet, and the northwest angle was three and a quarter feet lower than the southeast.

"The great difficulty there would have been in restoring the crib to its exact position, and the fear there might be another storm in the meantime, prevented any attempt of the kind from being made. The very slight deflection this rendered necessary in the line of the tunnel was of no practical importance whatever, though regretted, and the variations of the sides of the crib from perpendicular, though a constant eye-sore, did not affect its stability. The filling of the crib with stones was proceeded with as fast as the contractors could, and since it was completed, about the middle of August, no variation whatever in the position of this structure has been perceived. A tremor is frequently felt during severe storms, and when large fields of ice are passing. The rubbing of field ice against the crib is occasionally accompanied with a fearful noise. At such times the crib appears to a spectator on it, to be an immense plough moving through the ice.

"On several occasions the broken masses lodged on the south side of the crib, forming banks several hundred feet long, and reaching from the bottom of the lake to ten or fifteen feet above the surface.

"The breakwater portion of the crib being filled with stone, the contractors erected over it a temporary covering, with a light-house on top, and rooms above and below for the accommodation of their own men as well as the inspectors employed by the Board.

"The cast iron cylinder for the lake shaft was made in Pittsburg, by Messrs. James Marshall & Co., who also made the one for the land shaft. It consists of seven sections, each nine feet in length, nine feet internal diameter, two and one-quarter inches thick, and in other respects like the one for the land shaft, except that the lowest section was turned on the outside to make it penetrate the clay more easily, and the upper end was provided with two gate-ways for the introduction or exclusion of the water. The gate-ways are each fifty-four inches high by thirty-two inches wide, and placed with their tops below the lowest known level of the lake. Each gate-way was provided with a sliding gate on the outside of the cylinder, raised by a screw worked at the top of the cylinder. Provisional arrangements were made at each gate opening for forming chambers on each side, in case it should ever be necessary to repair either gate, by simply sliding in temporary gates. The sliding faces for those temporary gates, as well as of the permanent ones, were made of 'composition.' Inclined ways were placed inside of the crib, during its construction, to aid in lowering the cylinder to its place, but the storm already mentioned removed them.

"The lowest and next cylinder sections were put together on an incline. They were held in place, when required, by chains on the outside secured to the lower end of the bottom section, and a brake over the upper side of the cylinder. They were lowered gradually on the incline by means of screws

attached to the upper flange. These screws had to be removed, of course, for every new section put on. Care was taken to have sections enough together, before removing the chains from the bottom of the cylinder, to reach above the water, requiring five, or forty-five feet altogether, to be safe. A false bottom of wood was put into the cylinder at its lowest section, to keep out as much water as practicable. This gave the cylinder great buoyancy when sunk to a depth of thirty feet, and made it very easy to handle with blocks and falls placed over head.

"On being lowered, the cylinder sunk by its own weight two or three feet into the clay, when the false bottom stopped it.

"A hole was then bored through the false bottom, and the cylinder went down several feet further by its own weight. After the sixth, or gate section, was put on and the false bottom removed and excavation made within, the cylinder continued to sink by its own weight. After the top section was put on, a moderate force only was necessary to push the cylinder down twenty-three feet below the bottom of the lake.

"Below this point, the work of sinking the shaft was substantially a repetition of that at the shore end of the tunnel, except that no water was met with, and no pump ever put in or required. The little leakage that occurred was easily removed in buckets.

"An extension eastward, about fifty feet, was made in anticipation of the possible extension of the tunnel at some future day still further out into the lake. This was provided with the necessary sump and bottom on which to place another iron cylinder. The extension was of great service during the construction of the work, as a turn-out for the cars, and afforded by means of a six-inch tube, sunk perpendicular from above the surface of the lake to its outer end, an excellent opportunity to start the line of the tunnel below with great accuracy towards the deflecting point in the middle.

"The work of tunneling was carried on from this end in very much the same manner, and about as rapidly as it was on the first two thousand feet from the land shaft. The average progress made was nine and one-third feet a day till a point two thousand two hundred and ninety feet from the lake shaft was reached, when operation in this direction ceased. When the work from the land shaft was within one hundred feet of the same point, it was thought necessary to stop the masonry there and run a small timber drift through to the east face to be certain as to how the lines were going to meet. The two faces were brought together on the thirtieth of November, 1866, when it was found that the masonry at the east face was only about seven and one-half inches out of the line from the west end. The horizontal measurements were only three inches longer than was estimated by triangulation. This result, considering the difficulty of getting a clear atmosphere in the tunnel, was deemed very good, and much better than was generally expected. The last of the masonry in the regular tunnel, when the two faces were brought together, was completed on the sixth of December, and a stone commemorative of the event placed there by the Mayor of the city, in the presence of the City Council and Board of Public Works, both of which bodies, together with a number of citizens, passed from the shore through the tunnel to the crib, and then by a tug to the city on that day.

"In December the work of filling up the chambers was commenced, and also that of connecting the tunnel with the pumping wells. Much had been done previously towards constructing a gate chamber between the land shaft and the pumping wells. This was made nineteen and one-third feet exterior,

and sixteen feet interior diameter, and divided into five compartments, separated by walls twenty inches thick. The outer walls were first built on a boiler iron shoe or curb, and then sunk by excavating within. An old abandoned inlet gave a great deal of trouble by letting in water, and the boiler iron shoe, which was adopted for the sake of economy, proved more expensive in the end than a cast-iron one would have been. The foundations were on a bed of concrete twenty-four inches thick, on which the footings of the exterior and division walls, all of brick, were built. Through the bottom of each division wall there were left rectangular gate openings, three feet wide and five feet high. The tops of these openings are twenty-three and one-half feet below low water in the lake. In each opening a cast iron gate frame was built. The gates themselves are tapering.

"The frames were fitted with wedging grooves or ways, projecting beyond the walls just sufficient to free the gates when raised or lowered. The gates are operated by means of rods stayed at intervals, and by screws with hand wheels at the top of the walls.

"The connection between the land shaft and the gate chamber was of precisely the same size and form as the main tunnel. The connections with each of the pumping wells and the temporary shaft are all four and one-half feet interior diameter, and were tunneled through soft clay without any difficulty, except a little trouble in working under and through the piling beneath the old pumping well. The connection with the temporary shaft in the old inlet basin, is to be used in case it should ever be necessary to suspend the supply through the main tunnel, either to examine, cleanse or repair it, and has been already so used.

"A connection between the land and temporary shafts and the mouth of the old inlet on the lake shore, was made by means of a timbered drift through the clay. The temporary shaft consists of a brick well four feet interior diameter and thirty feet deep, provided with a curb built above the water on an iron shoe, held together by iron rods, and sunk by means of the same dredging apparatus that was used for sinking the curb of the new pumping well. Two wooden gates were left in the top of the curb, just below the surface of the water. A small area enclosing the well and the inlet, were coffer-dammed around as far as necessary to cut them off from a flow of the lake whenever desired.

"The work of filling the chambers of the main tunnel and the cleansing of that structure having been completed, water was first let into it on the eighth of March, 1867, when only the horizontal portion was filled, this precaution being taken to avoid too sudden a pressure on the masonry. By the morning of the eleventh the shafts were filled to the level of the lake.

"For the purpose of ascertaining if any defective workmanship existed where cavities on the outside of the masonry had been filled in, the water was pumped out of the tunnel sufficiently to permit the engineer and three representatives of the city press to go upwards of half way towards the land.

"Not a brick was observed to be out of its place or to have started. After the examination, the tunnel was again filled, and on the twenty-fourth, about four P. M., the mouth of the old inlet was cut off from the lake.

"The formal celebration of the completion of the tunnel and introduction of pure lake water, by appropriate public ceremonies, took place March 25, 1867.

"The original estimate of the probable cost of the work was \$307,552.00. The actual cost including all preliminary and other expenses of whatever nature, chargeable to the lake tunnel, up to April 1, 1867, was \$457,844.95, made up of the following items :

| | |
|---|--------------|
| Engineering and superintendency..... | \$ 28,774 02 |
| Printing and advertising..... | 375 13 |
| Miscellaneous..... | 6,250 08 |
| Labor..... | 2,096 20 |
| Lumber..... | 1,142 72 |
| Piles..... | 1,258 29 |
| Hardware..... | 53 85 |
| Castings..... | 597 55 |
| Lake shaft..... | 12,629 86 |
| (Gates and gate chambers of lake shaft included in contract of Dull & Gowan.) | |
| Dredging for crib..... | 1,500 00 |
| Tugs for board and employes..... | 6,718 17 |
| Discount on bonds..... | 14,685 35 |
| Opening celebration..... | 979 18 |
| Dull & Gowan (contractors)..... | 980,784 60 |
| | <hr/> |
| | \$457,844 95 |

"The original estimate was made when common labor was worth one dollar and twenty-five cents a day, which up to that time had been considered a very high price. It was also made near the beginning of the war, before the difference between the values of gold and currency had much disturbed prices.

"The original contract with Messrs. Dull & Gowan to construct the tunnel, was for \$315,139.00. The final settlement with them was for \$380,784.60, including \$27,420.00 for extras on the tunnel proper, and \$41,225.60 for extras on the shafts, crib, and east and west connections.

"From the statements and books of the contractors, the actual cost of the work they did, deducting profits, was not more than \$330,500.00. The crib and outer shaft cost \$117,500.00; the land shaft cost \$12,000.00; the west extension and connection with the gate chamber, no part of the original contract, cost \$6,000.00, leaving \$195,000.00 as the cost of the tunnel proper.

"This being 10,567 feet long, made the cost of the contractors \$18.45 per lineal foot. The original estimate of cost to the city was \$13.54. The usual prices paid during the work were: for common labor, two dollars; masons, five dollars, and engine men three dollars per day; for brick fourteen dollars per thousand, and cement two dollars and seventy-five cents per cask of three hundred pounds.

"On the part of the contractors the general charge of the work was taken by Col. Gowan, who was rarely absent from the city. Mr. Dull was very seldom here, but was of much service to the firm by his counsel. These gentlemen persevered through great discouragements, not so much from the intrinsic difficulties of the work itself, as from injury to their credit by the reported risks they had to encounter and from the appalling rise of gold, and consequently of prices, before they finished. Their final success was complete and very gratifying.

"Under the Board of Public Works, the general charge was taken by the City Engineer, who frequently visited the work. Erastus W. Smith, Esq., of New York, was Consulting Engineer in all matters relating to the iron cylinders and gates. It was supposed at first that the shafts would have to be

sunk by the pneumatic process. Mr. Smith believed, as soon as he was consulted on the subject, that this expense and trouble might be saved, and the event proved the correctness of his judgment. Mr. Smith aided the City Engineer in obtaining important advice from Mr. Webb, the eminent ship builder, and others relative to the construction of the crib.

"It should be said in this connection that, by the advice of Captain Swift, before the construction of the crib was commenced, Colonel Hartman Bache, U. S. Engineer, was visited at his office in Philadelphia and consulted. He examined the plans of that structure and pronounced them entirely safe."

In 1869 the system of water-pipe tunnels under the Chicago river was originated. Before that time the pipes at intersections of the river were laid on the bottom of the latter, and on August 18, 1869, the large main thus crossing the river at Chicago avenue was broken by a vessel dragging her anchor. This accident deprived the West Side of water for three days, and gave impetus to the change of system.

Early in 1869, the buildings and water tower, forming the bulk of the North Side pumping station of to-day, were finished. We again quote from the Eighth Annual Report of the Board of Public Works, pages seventy-one to seventy-three, both inclusive:

"The work of erecting the new building on the old site, and which forms so important a feature in the extensive improvement, has been quite tedious, owing to the care necessary to guard against accidents to the operation of the works. Portions only of the old wall could be removed and rebuilt at a time. However, the buildings are now so nearly completed that a description of them may be given.

"The plan and dimensions of the new buildings provide ample room for the present machinery as well as for additional engines. The style of architecture is 'castellated gothic,' with heavy battlemented corners, executed with solid rock-faced ashlar stone and cut trimmings; all the detail being of a massive and permanent character.

"The dimensions of the engine room are one hundred and forty-two feet long, sixty feet wide and thirty-six feet in the clear from main floor to ceiling. A projection of 24x56 feet forms the center of the main front. This portion is divided into two stories. The upper part is devoted to drawing rooms and sleeping apartments for the engineers. The lower part is divided by the main entrance, the floor of which is tiled. On the south side of the vestibule is a large room designed for Commissioners or reception room. On the north side are offices and other conveniences for engineers. All the walls are two feet thick. The walls of the interior of the main building are rough cast, blocked off representing cut stone work.

"The ceiling is divided into square panels, formed by projecting moulded purlins, supported by large gothic brackets resting on heavy corbels built in the wall. The roof of the main building is constructed of massive timbers, covered with slate and pierced with the necessary ventilators, etc. Midway between floor and ceiling and extending around the entire interior space of the building, there is a handsome and substantial gallery or balcony, protected by fancy gothic iron railing, the whole resting upon brackets of like style built into the walls. From this point a pleasing view of the operations of the engines is obtained. This gallery is reached by two flights of spiral

stairways constructed entirely of iron. Below the main floor of principal building there is a space extending over the whole area and nine feet high in clear. Here are located the pumps, delivery mains, stop-valves, etc., of the several engines, also store-rooms and other conveniences. From the floor of this large room the pump wells connected with the lake tunnel descend. The north well and the center or old well have already been described.

"The south well, intended for additional engines as before stated, was sunk to place in October last. The form and construction of this crib, as well as the mode of sinking it to its place, is similar to that adopted for the north well, already described; it is, however, larger. The outside diameter is $44\frac{1}{2}$ feet at the bottom, $43\frac{1}{2}$ feet at the top, and twenty-two feet from the top of the cast-iron shoe to the top of the coping. The outside has a batter of six inches. The vertical bond consisted of forty-eight $1\frac{1}{2}$ -inch bolts.

"The boiler rooms are placed nineteen feet apart and are located in the rear of the main building. They are $46\frac{1}{2}$ feet long, thirty-six feet wide, and twenty-five feet from the floor to the ceiling. The floor is of stone and the roof is wholly of iron and slate, thus rendering them fire-proof. The buildings throughout are heated by steam, and are amply lighted, ventilated and drained.

"A single smoke-stack is placed between the two boiler rooms, the north and south side of the base forming a part of the wall of the boiler room, and are so arranged that the boilers in both rooms are connected with it twenty feet above the floor. The lower part is constructed with a large opening east and west, forming a vestibule or main passage from the rear part of the main building. The base of the smoke-stack is eighteen feet square to a point thirty feet high; from thence it is octagon, with a gradual taper terminating in a castellated cornice one hundred and thirty feet from the ground. The exterior is stone, corresponding in style to the buildings. The interior has a parallel circular flue, built of brick, which is built independent of the stone work, thus forming an air space between the two.

"The water tower is the most imposing feature among the whole mass of buildings comprising the works, and is without doubt the most substantial and elaborate structure of the kind on this continent. Its center is one hundred and six feet west of the main buildings, upon ground purchased for the purpose in 1865. One hundred and sixty-eight piles capped with twelve-inch oak timbers, the spaces filled with concrete, constitute the foundation up to the surface of the water; from thence to a point six feet below grade, solid, massive dimension stones, laid in cement, intervene. At this point the gate, pit and arched ways on each corner for mains are formed. The base of the tower is twenty-two feet square. The exterior of the shaft is octagonal, and rises one hundred and fifty-four feet from the ground to the top of the stone work, which terminates in a battlemented cornice. The whole is surmounted by an iron cupola (not yet finished), pierced with numerous windows, from whence may be obtained a magnificent view of the lake, the city, and surrounding country. The exterior of the tower is divided into five sections. The first section is forty feet square, exclusive of battlements, turrets, etc., and surrounds the base of the shaft, forming a continuous vestibule nine feet wide on the four sides, with a grand entrance on each side. The floor and roof of this portion is of massive stone. The roof forms a balcony. The walls are plastered and blocked off like those of the engine room. The ceiling is groined and corniced, and the sides are ornamented with tablet

ERECTED 1872.

DOUBLE ENGINES.

Capacity, 36 Million Gallons in 24 Hours.

Steam Cyl. 70-in. Diam. 10-ft. Stroke.

Water Pumps 57-in. Diam. 10-ft. Stroke.

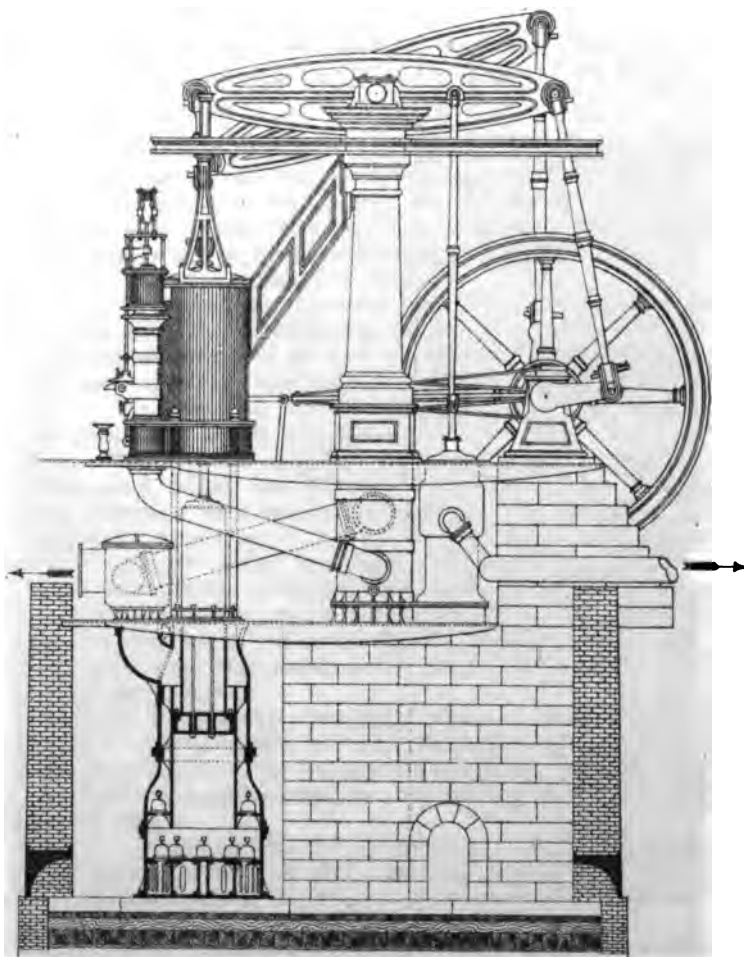
Length of Working Beams, Each 28 ft.

Weight " " " " 20 Tons.

Diameter of Fly Wheel 26 ft.

Weight " " " " 40 Tons.

Cost, with Three Boilers, \$188,400.00



drinking fountains, etc. The other sections of the exterior recede from each other in graceful proportion, each having turreted cornices, battlements, etc.

"The bottom of the interior is hexagonal; here the base piece of stand pipe (a casting weighing six tons) is placed, having six openings supplied with 30-inch gates, to which the water mains are connected. From this base a thirty-six inch wrought-iron stand pipe ascends to a height of one hundred and thirty-eight feet; around this pipe is an easy and substantial iron spiral stairway, leading to the cupola on top, and lighted throughout with alternate windows.

"The whole structure is thoroughly fire-proof, being constructed wholly of stone, brick and iron.

"DE WITT C. CREGIER,

Engineer."

The great fire of 1871 did serious damage to the works. In the Eleventh Annual Report of the Board of Public Works we find the following passage on pages three to six, both inclusive :

"The most notable event which occurred in the past year, or which has occurred in any year in the history of Chicago, was the destruction of a large portion of the city by fire on the 8th and 9th of October last. The loss of property was greater than has ever occurred before, from the same cause, in the history of the world, amounting, according to the most reliable estimates, to two hundred millions of dollars.

"The fire originated on the west side of the river, in a small stable standing on the north side of DeKoven street east of Jefferson street, and in the rear part of the East $\frac{1}{2}$ of Lot 12, Block 38, School Section Addition to Chicago, at about nine o'clock on the evening of Sunday, October 8, 1871. This section of the city was built up almost entirely of wooden buildings, which the preceding dry season had made very inflammable. The fire was speedily under full headway, and aided by a furious south wind, which was blowing at the time, spread in a northerly and easterly direction with wonderful rapidity, over a territory about four miles in length by an average of two thirds of a mile in breadth, and comprising about 1,687.89 acres, and finally terminated at midnight of the second day at the extreme north-east portion of the city, having destroyed with two or three exceptions, every building in its course. It burnt over, on an average, sixty-five acres per hour, and the average destruction of property for the same time was about seven and a half millions of dollars, or about \$125,000 per minute.

"It reached the Chicago pumping works at three o'clock Monday morning. The buildings connected with the works were partially destroyed, and the pumping machinery so damaged as to stop working; thereby cutting off the supply of water and leaving the city without means for checking the progress of the fire.

"When the extent and fearful progress of the fire are considered, it is a matter for wonder, as well as gratitude, that so few lives were sacrificed. So far as can be ascertained, the whole number will not exceed one hundred and fifty.

"The whole city should unite in expressions of gratitude for the generous contributions which came in from all parts of the world for the relief

of the distress and suffering caused by the fire. It was the most universal exhibition of benevolence the world has ever known.

"The Board desire to acknowledge very gratefully the generous and ready offers of assistance made to them at that time by neighboring cities, by different railroad companies, and by various other parties.

"A statement is herewith given of the damage to property which belonged to the city, and which was in charge of the Board of Public Works.

"CITY HALL.

"The new City Hall, which has been occupied only about a year, and which cost the city about \$470,000.00, was entirely ruined. The walls, although left standing, were found to be in such a damaged condition as to be quite useless in the construction of a new building, and are now being taken down.

"There were six vaults in the building, which were intended to be fire-proof, and were occupied: two by the Board of Public Works, one by the City Clerk, one by the Tax Commissioner, one by the City Comptroller, and one by the City Collector.

"In the first four, which were composed wholly of brick, everything was preserved uninjured, while in the last two, in consequence of the giving way of the stone which was used for the floors the contents were destroyed.

"The boilers and engine connected with the heating apparatus were located in the area under the sidewalk, and were uninjured. They will be taken out and used for heating the present temporary City Hall.

"WATER WORKS.

"The walls of the engine house were but little injured, while the roof, floors and other portions were all destroyed. The water tower was unharmed.

"The machinery, which very fortunately was found to be less seriously damaged than was at first supposed, has been repaired, and is now believed to be in as good working order as before the fire. The loss on the building and machinery is estimated at \$75,000.

"The machine shop connected with the works, including a large amount of valuable machinery, was almost a total loss. It was a substantial brick structure, 50x120 feet, and two stories high, and contained a machine, blacksmith and carpenter shop, and stables. It was completed and occupied in February, 1868, and cost the city, including machinery, \$25,500.

"The damage to the North and South Side reservoirs is estimated at \$20,000. The wood work was all destroyed, and the stone, brick and iron work was very much injured. The use of the South reservoir in connection with the water works will be discontinued.

"There were some 15,000 water service pipes melted or otherwise so injured as to allow a very serious waste of water. The expense of finding and stopping these leaks will amount to \$15,000.

"On account of the debris from burnt buildings, which in many cases covered the service pipes to the depth of several feet, and the destruction of the water books showing their location, great difficulty was encountered in finding and shutting off leaks. The winter weather which was unusually severe, also delayed the work very considerably.

"Most of the fire hydrants within the burnt district will have to be repaired and reset. The cost of this work is estimated at \$10,000.

"About three hundred and seventy water meters were more or less damaged. The cost of repairing and re-setting will amount to \$8,000.

"On account of the immense waste of water through open service pipes in the burnt district, the amount of water pumped for the six months ending April 1, 1872, was larger than was ever before delivered in the corresponding period in any year. The loss on water which in this way ran to waste during this time is estimated at \$97,410.

* "The '87' engine was in running order again eight days after the fire, and the other engines by the 10th of November. The repairs of the buildings naturally required much longer time."

On November 14, 1872, an enormous new engine, of a capacity of 36,000,000 gallons per twenty-four hours, designed by Mr. Cregier, was put in operation. It is known as the "72" engine. (See Plate IV.)

• On July 12th of the same year, work was begun on a new lake tunnel, seven feet interior diameter, from the crib to the North Side station; this was finished on July 3, 1874, and on October 12th of the same year an extension of the same, also seven feet in diameter, under the land to a new pumping station at Ashland avenue and Twenty-second street, was also completed.

On September 19, 1876, the "Board of Public Works" was succeeded by the "Department of Public Works," with a single responsible head.

On November 6th of the same year, the new "West Side" pumping station, mentioned above, was put in operation. It then contained two compound condensing beam engines, each of a capacity of 15,000,000 gallons per twenty-four hours. On Plate V is found an elevation and section of one of these engines. This plate, as well as the preceding ones, is reproduced from those accompanying the valuable First Annual Report of the Department of Public Works, for the year ending December 31, 1876. It will be noticed that with the change in management had come about a change in the fiscal year, so that the report alluded to above covers only nine months, from April 1 to December 31, 1876.

During this period the portion above low water of the lake crib, was rebuilt and assumed its present shape, and in the following year, 1877, the whole structure was examined carefully with the aid of divers and the timber superstructure as well as the masonry superstructure, underwent thorough repairs, in conformity with the suggestions from General Wm. Sooy Smith, who had superintended the work of examination.

During the Winter of 1880 to 1881 the crib was subjected to a very severe test by the movements of the vast fields of ice surrounding it. Men and horses frequently traveled from shore to crib and back, and the steam tug sent to aid in keeping the ports clear had to lie at the crib day and night for some time, not being able to move through the ice. No injury, however, was done to the crib, nor was the water supply interrupted.

Late in December, 1881, the old five-foot lake tunnel was pumped dry and thoroughly examined by the city officials. A deposit from four to seven inches in depth was found on the bottom, but the brick work did not show a single flaw.

On July 21, 1884, two new engines were put in operation at the West Side pumping works; they are, except as to main pump valves, almost an exact counterpart of the two older engines. The total pumping capacity of the West Side station was raised by this addition to 60,000,000 gallons per twenty-four hours, and that of both works combined to 134,000,000 gallons per twenty-four hours.

During 1887, a shore inlet tunnel, seven feet in diameter and 1,500 feet long, with an inlet shaft protected by a crib opposite the North Side pumping station, was completed, to be used when the supply should be endangered by ice or otherwise at the lake crib two miles out.

In June of the same year, two new "Gaskill" engines, each of a capacity of 12,000,000 gallons per twenty-four hours, were put in operation at the North Side pumping station. (See Plate VI.)

At the close of the year 1887 a contract was entered into for the construction of a new tunnel, to be eight feet in diameter and to extend four miles out into the lake, and the work was begun on a shore shaft at the foot of Peck court.

During 1888 a strong break-water was built around the two-mile crib, with an opening, closed by a screen, on the shore side.

The land ramifications of the new four-mile lake tunnel, connecting the shore shaft of the latter with the two new pumping stations, the South Side pumping station at Indiana avenue and Fourteenth street, and the Central pumping station on Harrison street, between Desplaines and Halsted streets, were all but completed during 1888, and a great deal of work was done on the new engine foundations, which are exceptionally deep and heavy; but very little progress was made on the lake tunnel proper, owing to unforeseen difficulties arising from quicksand and very soft clay.

The chief event of the year 1889 was the annexation, on July 15th, of the suburban towns of Hyde Park, Lake, Jefferson and Lake View, a territory with an area of one hundred and twenty-eight square miles, and a population of 220,000 souls, whereby the water works system of the city acquired two pumping stations, the Sixty-eighth street station (the old Hyde Park and Lake stations merged into one), and the Lake View station, with an aggregate engine capacity of 72,000,000 gallons per twenty-four hours; one lake tunnel six feet in diameter and 8,000 feet long, with a submerged inlet, for Hyde Park and Lake; one lake tunnel in process of construction, six feet in diameter, for Lake View and Jefferson; about three hundred and thirty miles of water pipe.

During the year the new four-mile lake tunnel was carried to a distance of about two-thirds of a mile from shore. The Central pumping station as a whole, with its two vertical condensing triple expansion engines, each of a capacity of 15,000,000 gallons per twenty-four hours, was carried on well toward completion. At the South Side pumping station, which is to contain three engines of the same type and capacity as the two at the Central, the engine foundations were finished. (See Plates VIII and IX.)

The Lake View tunnel acquired by annexation, as mentioned above, was pushed forward to a distance of about one thousand feet from shore, partly through rock, during 1889.

The further development of the water supply system is described fully in the Annual Report of the City Engineer for 1890 in the main portion of this volume.

On the following two pages will be found a tabulated record, and Plate XI furnishes a number of graphic illustrations as to the principal items of interest in the history of the growth of the system from 1854 to 1890.

TABULAR STATEMENT OF THE CONSUMPTION AND WASTE OF WATER,

| WATER DISTRIBUTED DAILY IN U. S. GALLONS. | | | | | | | | | | | | | |
|---|----------------|------------------------|--|---|------------------------------|------------------------|------------------------------------|------------------------|-------------------------------------|--------------------------------|-----------------------------------|--------------------|--|
| YEAR. | Actual Supply. | Per cent. of Increase. | Estimate at one-sixth Annual Increase. | Estimate made in 1851 based on 35 Gallons per Inhabitant. | Quantity to Each Inhabitant. | Per cent. of Increase. | Average Quantity per Mile of Pipe. | Per cent. of Increase. | Capacity of Works per Mile of Pipe. | Average Quantity for Each Tap. | Quantity for One Dollar per Year. | Capacity of Works. | Proportion of Pumping capacity to quantity supplied. |
| | | | | | | | | | | | | | |
| 1854 | 591,083 | | | | 8.9 | | 19,700 | | 19,703 | | | 8,000,000 | 1 to 13.7 |
| 1855 | 2,392,945 | 304.85 | | | 21.0 | 136.0 | 55,650 | 182.5 | 55,600 | | 41.19 | 8,000,000 | 1 to 3.3 |
| 1856 | 4,000,000 | 67.11 | | | 46.5 | 121.4 | 76,923 | 38.2 | 76,923 | | 50.00 | 8,000,000 | 1 to 2.0 |
| 1857 | 3,552,062 | 11.17 | | | 38.2 | 21.7 | 61,242 | 20.4 | 61,242 | | 36.61 | 8,000,000 | 1 to 2.2 |
| 1858 | 2,991,413 | 18.74 | | | 32.8 | 13.4 | 41,317 | 132.33 | 276,243 | 641 | 28.29 | 20,000,000 | 1 to 6.7 |
| 1859 | 3,877,119 | 29.61 | 3,489,980 | 2,520,000 | | | 45,559 | 10.26 | 235,017 | 706 | 31.53 | 20,000,000 | 1 to 5.0 |
| 1860 | 4,703,526 | 21.31 | 4,071,644 | 2,700,000 | 43.0 | 31.10 | 51,687 | 13.45 | 219,890 | 740 | 35.86 | 20,000,000 | 1 to 4.2 |
| 1861 | 4,841,520 | 2.93 | 4,750,251 | 2,880,000 | | | 50,803 | 1.71 | 209,863 | 704 | 32.21 | 20,000,000 | 1 to 4.1 |
| 1862 | 6,074,739 | 25.47 | 5,541,960 | 3,080,000 | 43.9 | 2.09 | 57,909 | 13.96 | 190,657 | 815 | 40.25 | 20,000,000 | 1 to 3.2 |
| 1863 | 6,400,298 | 5.35 | 6,465,620 | 3,240,000 | | | 55,461 | 4.23 | 173,310 | 760 | 33.53 | 20,000,000 | 1 to 3.1 |
| 1864 | 6,913,259 | 8.01 | 7,543,223 | 3,420,000 | 40.8 | 7.30 | 54,306 | 2.09 | 157,109 | 701 | 30.87 | 20,000,000 | 1 to 2.9 |
| 1865 | 7,610,459 | 10.08 | 8,800,427 | 3,600,000 | | | 53,899 | 0.75 | 141,643 | 667 | 30.14 | 20,000,000 | 1 to 2.8 |
| 1866 | 8,681,536 | 14.07 | 10,267,165 | 3,780,000 | 43.3 | 6.12 | 57,040 | 5.82 | 131,406 | 637 | 28.83 | 20,000,000 | 1 to 2.3 |
| 1867 | 11,562,273 | 33.18 | 11,978,359 | 3,960,000 | | | 68,145 | 15.96 | 114,416 | 701 | 34.24 | 20,000,000 | 1 to 1.7 |
| 1868 | 14,724,999 | 27.35 | 13,974,752 | 4,140,000 | 58.4 | 34.87 | 70,589 | 6.71 | 182,166 | 704 | 34.76 | 38,000,000 | 1 to 2.6 |
| 1869 | 18,633,278 | 26.54 | 16,303,873 | 4,320,000 | | | 77,670 | 10.03 | 158,400 | 658 | 34.09 | 38,000,000 | 1 to 2.2 |
| 1870 | 21,766,260 | 16.81 | 19,021,191 | 4,536,000 | 72.8 | 24.65 | 79,890 | 2.85 | 139,475 | 616 | 40.35 | 38,000,000 | 1 to 1.7 |
| 1871 | 23,464,877 | 7.80 | 22,191,389 | 4,752,000 | 72.2 | | 81,688 | 2.10 | 132,095 | 616 | 53.58 | 38,000,000 | 1 to 1.6 |
| 1872 | 27,536,819 | 17.35 | 25,889,954 | 5,004,000 | 74.5 | 2.33 | 88,605 | 8.62 | 122,272 | 648 | 50.62 | 38,000,000 | 1 to 1.3 |
| 1873 | 32,117,312 | 16.63 | 30,204,947 | 5,256,000 | | | 91,387 | 3.14 | 120,562 | 669 | 45.31 | 74,000,000 | 1 to 2.3 |
| 1874 | 38,090,952 | 18.60 | 35,239,104 | 5,544,000 | 96.3 | 29.40 | 98,579 | 7.87 | 191,511 | 738 | 53.94 | 74,000,000 | 1 to 1.9 |
| 1875 | 39,844,556 | 4.60 | 41,112,288 | 5,832,000 | | | 97,180 | 1.44 | 188,488 | 720 | | 74,000,000 | 1 to 1.8 |
| 1876 | 41,931,481 | 5.23 | 47,964,337 | | 103.0 | 7.00 | 100,700 | 3.62 | 177,713 | 733 | 50.42 | 74,000,000 | 1 to 1.7 |
| 1877 | 52,183,892 | 24.45 | 47,964,337 | | | | 122,878 | 22.02 | 244,890 | 803 | 57.77 | 104,000,000 | 1 to 2.0 |
| 1878 | 53,600,789 | 2.71 | 55,958,393 | | 122.7 | 19.12 | 124,673 | 1.46 | 241,900 | 801 | 56.77 | 104,000,000 | 1 to 1.9 |
| 1879 | 56,322,441 | 5.07 | 76,165,590 | | | | 127,651 | 1.95 | 235,667 | 866 | 61.08 | 104,000,000 | 1 to 1.8 |
| 1880 | 57,384,376 | 2.16 | | | 112.0 | 5.90 | 128,009 | 0.87 | 228,370 | 844 | 66.70 | 104,000,000 | 1 to 1.8 |
| 1881 | 63,922,700 | 11.09 | | | | | 125,343 | 0.05 | 220,200 | 865 | 68.24 | 104,000,000 | 1 to 1.6 |
| 1882 | 66,166,969 | 3.51 | | | 110.1 | 1.70 | 133,079 | 6.17 | 209,171 | 839 | 63.07 | 104,000,000 | 1 to 1.5 |
| 1883 | 73,265,592 | 10.72 | | | | | 141,276 | 6.16 | 200,540 | 857 | 64.10 | 104,000,000 | 1 to 1.4 |
| 1884 | 80,017,990 | 9.62 | | | 113.6 | 3.20 | 147,281 | 4.25 | 246,641 | 868 | 66.65 | 134,000,000 | 1 to 1.6 |
| 1885 | 91,650,190 | 14.22 | | | | | 162,180 | 10.10 | 237,126 | 926 | 68.44 | 134,000,000 | 1 to 1.4 |
| 1886 | 97,789,706 | 6.70 | | | 118.4 | 4.22 | 164,076 | 1.17 | 224,824 | 916 | 71.12 | 134,000,000 | 1 to 1.3 |
| 1887 | 101,937,842 | 4.24 | | | 119.9 | 1.27 | 159,727 | 2.65 | 209,967 | 881 | 68.41 | 134,000,000 | 1 to 1.3 |
| 1888 | 104,315,624 | 2.33 | | | 119.2 | 0.58 | 154,062 | 3.55 | 233,348 | 894 | 67.00 | 158,000,000 | 1 to 1.5 |
| 1889 | 110,805,707 | 6.30 | | | 123.2 | 3.36 | 151,953 | 1.37 | 216,498 | 832 | 68.38 | 158,000,000 | 1 to 1.4 |
| 1890 | 152,372,288 | 37.37 | | | 126.8 | 2.90 | 126,450 | 2.02 | 215,768 | 982 | 72.23 | 260,000,000 | 1 to 1.8 |

* Municipal year changed from April 1st to January 1st. The items are for nine months only.

† Decrease.

§ Annexed portion not included in this estimate.

Plate V.

ERECTED 1876.
COMPOUND CONDENSING BEAM PUMPING ENGINES.
WEST DIVISION WATER WORKS.

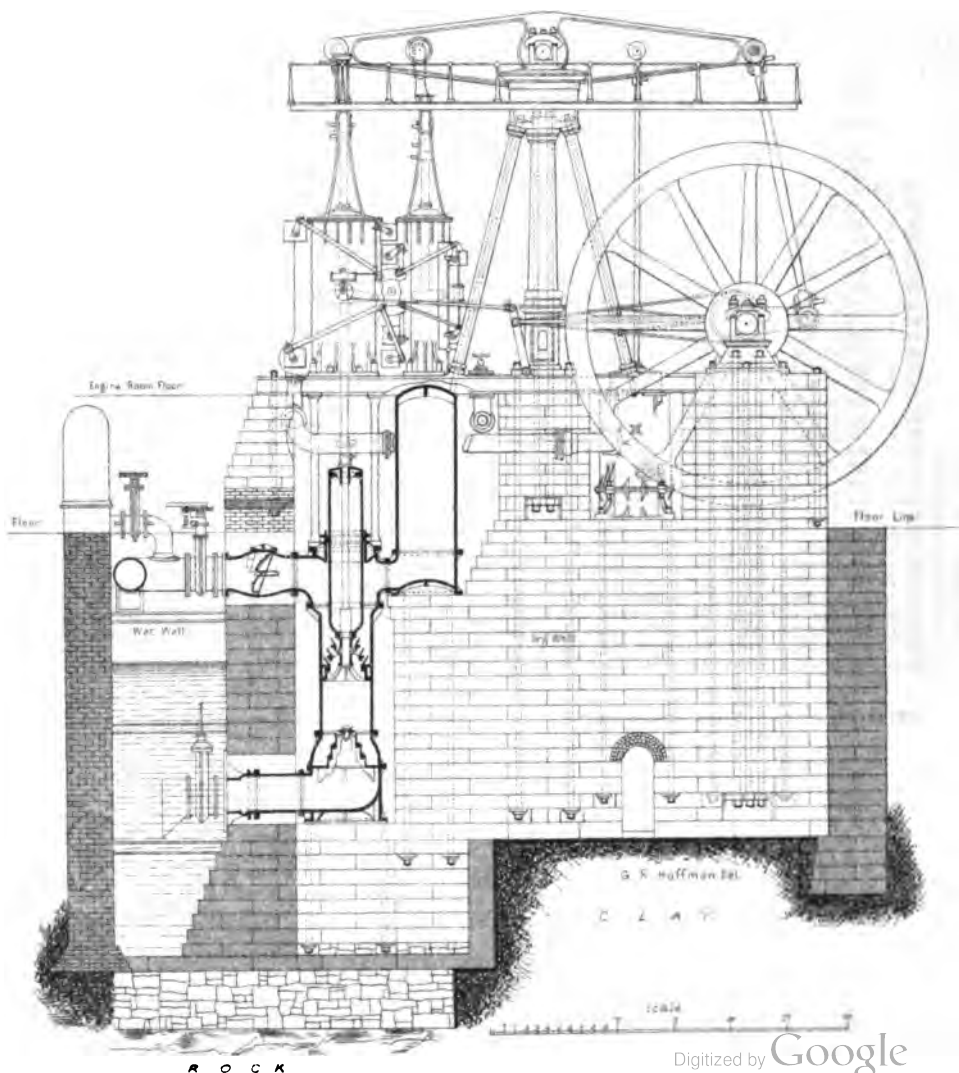
High Pres. Cyl. 48-in. Diam. 6-ft. Stroke.

Low Pres. Cyl. 76-in. " 10-ft. "

Water Pumps 51-in. " 10-ft. "

Guaranteed Capacity 30,000,000 U. S. Gallons in 24 Hours.

Cost, including Six Boilers, \$243,500.00.



RELATIVE PUMPING CAPACITY, POPULATION, PIPES, REVENUE, ETC.

| REVENUE. | | TAPS. | | | PIPE. | | | | POPULATION. | | Total Cost of Water Works at End of Each Year. | Hydrants. | Stop-Valves. | Meters. | Tons of Coal Used. | Average Cost of Coal per Ton. | Average cost of pumping 1,000,000 Gals. one foot high. |
|-------------------|------------------------|------------------------|------------------------|------------------------------------|---------------------|-----------------------|------------------------|---|----------------|------------------------|--|-----------|--------------|---------|--------------------|-------------------------------|--|
| Amount Collected. | Per cent. of Increase. | Number of Taps in Use. | Per cent. of Increase. | Number of Inhabitants to Each Tap. | Miles of Pipe Laid. | Miles of Pipe in Use. | Per cent. of Increase. | Number of Inhabitants per Mile of Pipe. | Total Numbers. | Per cent. of Increase. | | | | | | | |
| 58,105 | ... | ... | ... | ... | ... | 30 | 2,195 | 65,872 | ... | ... | 595,045 | 123 | ... | ... | 504 | ... | ... |
| 80,000 | 27.37 | ... | ... | ... | ... | 43 | 1,860 | 80,000 | 17.66 | ... | 610,845 | 158 | ... | ... | 1,079 | ... | ... |
| 102,179 | 5.00 | ... | ... | ... | ... | 52 | 1,654 | 88,000 | 7.00 | ... | 641,509 | ... | ... | ... | ... | ... | ... |
| 122,948 | 20.32 | ... | ... | ... | ... | 58 | 1,600 | 93,000 | 7.53 | ... | 738,515 | ... | ... | ... | 1,966 | ... | ... |
| 131,162 | 6.68 | ... | ... | ... | ... | 72.4 | 1,257 | 91,000 | 2.16 | ... | 829,190 | ... | ... | ... | ... | ... | ... |
| 150,290 | 14.58 | ... | ... | ... | ... | 85.1 | 17.54 | ... | ... | ... | 989,595 | ... | ... | ... | 2,324 | ... | ... |
| 150,920 | 0.41 | ... | ... | ... | ... | 91.0 | 6.93 | 1,201 | 109,260 | 20.06 | 1,013,245 | ... | ... | ... | 2,621 | ... | ... |
| 190,886 | 26.48 | ... | ... | ... | ... | 95.3 | 4.72 | 1,317 | 138,186 | 26.47 | 1,020,160 | ... | ... | ... | 2,431 | \$3.84 | ... |
| 224,246 | 17.47 | ... | ... | ... | ... | 104.9 | 10.07 | ... | ... | ... | 1,118,568 | ... | ... | ... | 65 | 2,970 | 5.53 |
| 252,441 | 12.57 | ... | ... | ... | ... | 115.4 | 10.00 | ... | ... | ... | 1,198,589 | 548 | 298 | 99 | 3,130 | 6.53 | ... |
| 301,124 | 19.28 | ... | ... | ... | ... | 127.3 | 10.91 | 1,330 | 169,353 | 22.55 | 1,491,044 | 606 | 332 | 133 | 3,149 | 9.94 | ... |
| 337,468 | 12.06 | ... | ... | ... | ... | 141.2 | 10.91 | 1,264 | 178,492 | ... | 1,906,965 | 762 | 402 | 147 | 3,450 | 9.21 | ... |
| 420,656 | 24.65 | ... | ... | ... | ... | 152.2 | 7.80 | 1,316 | 200,418 | 18.34 | 2,373,920 | 790 | 454 | 179 | 3,680 | 8.51 | ... |
| 476,968 | 13.38 | ... | ... | ... | ... | 174.8 | 14.84 | ... | ... | ... | 2,810,911 | 919 | 457 | 235 | 5,316 | 7.30 | ... |
| 539,318 | 13.07 | ... | ... | ... | ... | 208.6 | 19.33 | 1,208 | 252,054 | 25.76 | 3,146,383 | 1,070 | 501 | 400 | 5,584 | 7.00 | ... |
| 543,814 | 21.88 | ... | ... | ... | ... | 239.9 | 15.00 | ... | ... | ... | 3,677,405 | 1,294 | 623 | 530 | 8,737 | 6.93 | ... |
| 705,926 | 0.41 | ... | ... | ... | ... | 272.4 | 13.13 | 1,096 | 298,700 | 18.50 | 4,279,895 | 1,552 | 1,076 | 656 | 9,311 | 7.49 | ... |
| 705,926 | 0.41 | ... | ... | ... | ... | 287.7 | 5.51 | 1,130 | 325,000 | ... | 4,712,615 | 1,667 | ... | 341 | 10,267 | 8.09 | ... |
| 705,926 | 0.41 | ... | ... | ... | ... | 310.8 | 8.02 | 1,188 | 369,293 | 23.63 | 5,212,518 | 1,799 | 1,537 | 618 | 13,925 | 7.18 | ... |
| 705,926 | 0.41 | ... | ... | ... | ... | 351.4 | 13.06 | ... | ... | ... | 6,203,817 | 2,254 | 1,794 | 896 | 15,120 | 8.56 | ... |
| 705,926 | 0.41 | ... | ... | ... | ... | 386.4 | 10.00 | 1,023 | 395,408 | 7.07 | 7,251,718 | 2,607 | 2,123 | 1,174 | 16,958 | 8.27 | ... |
| 705,926 | 0.41 | ... | ... | ... | ... | 410.0 | 6.10 | ... | ... | ... | 7,921,496 | 2,835 | 2,416 | 1,313 | 12,318 | 7.92 | ... |
| 705,926 | 0.41 | ... | ... | ... | ... | 416.4 | 1.56 | 977 | 407,000 | 2.93 | 8,179,158 | 2,901 | 2,590 | 1,446 | 16,805 | 7.15 | ... |
| 705,926 | 0.41 | ... | ... | ... | ... | 424.6 | 1.96 | ... | ... | ... | 8,344,350 | 3,002 | 2,701 | 1,623 | 17,303 | 5.38 | 6.11 |
| 705,926 | 0.41 | ... | ... | ... | ... | 429.9 | 1.24 | 1,016 | 436,731 | 7.30 | 8,431,023 | 3,130 | 2,830 | 1,888 | 13,028 | 4.39 | 5.14 |
| 705,926 | 0.41 | ... | ... | ... | ... | 441.3 | 3.07 | ... | ... | ... | 8,550,374 | 3,228 | 2,992 | 2,067 | 18,557 | 4.12 | 5.34 |
| 705,926 | 0.41 | ... | ... | ... | ... | 455.4 | 2.77 | 1,124 | 512,060 | 17.26 | 8,802,725 | 3,361 | 3,105 | 2,113 | 16,393 | 4.37 | 5.375 |
| 705,926 | 0.41 | ... | ... | ... | ... | 472.3 | 3.07 | ... | ... | ... | 8,875,523 | 3,553 | 3,531 | 2,163 | 16,756 | 5.51 | 6.36 |
| 705,926 | 0.41 | ... | ... | ... | ... | 497.2 | 5.27 | 1,207 | 600,450 | 17.26 | 9,353,314 | 3,872 | 3,720 | 2,310 | 17,169 | 4.58 | 6.43 |
| 705,926 | 0.41 | ... | ... | ... | ... | 518.6 | 4.30 | ... | ... | ... | 9,695,956 | 4,144 | 3,861 | 2,568 | 20,203 | 4.28 | 6.46 |
| 705,926 | 0.41 | ... | ... | ... | ... | 543.3 | 4.76 | 1,206 | 704,080 | 17.26 | 10,099,658 | 4,616 | 4,022 | 2,685 | 20,286 | 5.04 | 6.39 |
| 705,926 | 0.41 | ... | ... | ... | ... | 565.1 | 4.01 | ... | ... | ... | 10,416,344 | 4,943 | 4,196 | 2,897 | 27,719 | 4.39 | 5.43 |
| 705,926 | 0.41 | ... | ... | ... | ... | 595.0 | 5.47 | 1,386 | 825,880 | ... | 10,931,396 | 5,350 | 4,432 | 3,085 | 29,442 | 4.60 | 5.86 |
| 705,926 | 0.41 | ... | ... | ... | ... | 638.2 | 7.08 | 1,332 | 850,000 | 2.92 | 11,393,421 | 5,889 | 4,736 | 3,273 | 29,645 | 4.54 | 5.95 |
| 705,926 | 0.41 | ... | ... | ... | ... | 677.1 | 6.09 | 1,292 | 875,000 | 2.94 | 12,390,562 | 6,378 | 5,099 | 3,122 | 30,174 | 4.60 | 6.20 |
| 705,926 | 0.41 | ... | ... | ... | ... | 729.8 | 7.78 | 1,233 | 900,000 | 2.85 | 14,838,562 | 10,456 | 7,444 | 3,287 | 30,617 | 4.07 | 5.27 |
| 705,926 | 0.41 | ... | ... | ... | ... | 1205 | 65.11 | 996 | 1,200,000 | 3.33 | 16,902,190 | 11,836 | 8,505 | 3,924 | 46,190 | 3.48 | 6.23 |

† NOTE.—346.2 miles due to annexation.

‡ Estimated upon the increase from 1858 to 1878.

ITEMS OF INTEREST RELATING TO DEVELOPMENT OF CHICAGO HARBOR.

The first sailing vessels which might be dignified by the name of "the Marine of the Lakes" were suggested by the requirements of the fur trade, which called for a heavier vessel than the light bark canoe of the early explorers and missionaries. The Mackinaw barges therefore appeared, and with them the voyageurs. These barges were known at Chicago for many years, but about the year 1830 both boats and voyageurs ceased to visit the settlement, as the sloops and schooners then introduced monopolized the lake trade. As regards local marine interests, they, of course, commenced with the arrival of the first vessel at the mouth of the Chicago river, after the Government had determined to establish a port and a fort here. In 1795, by treaty with the Indians, the Government came into possession of a tract of land six miles square at the mouth of that river. To this locality, in the Summer of 1803, Capt. John Whistler's company was ordered from Detroit to build a fort. While the troops under Lieut. Swearingen went overland to this point, the schooner "Tracey," under its master, "Dow," was dispatched with supplies, having also on board the family of Whistler. At St. Joseph river they left the vessel and took a row boat to Fort Dearborn. On arriving at Chicago the "Tracey" anchored about half a mile from the shore and sent her cargo ashore in boats. A sand bar shut up the mouth of the river, but there is no recollection of a sandy island at the mouth, sometimes spoken of. The schooner remained here four or five days, the stores she brought, which were sufficient to last the garrison a twelvemonth, being placed in tents. The soldiers soon made a stockade to protect the supplies from the Indians. While the vessel was there, some two thousand Indians visited the locality, being attracted by so unusual an occurrence as the appearance in these waters of "a big canoe with wings." Lieut. Swearingen returned with the "Tracey" to Detroit. Being the first vessel of any size which visited Chicago, it is not out of place to say that this schooner and a brig were owned by the Government, and were the only craft under national control on the lakes. On its return voyage the "Tracey" stopped at Mackinaw. A boisterous storm nearly destroyed the little schooner, of only about ninety tons burden, but she finally reached Detroit in safety. In 1809, Ramsey Crooks arrived at the fort on board the "Salirea." In 1814 the first merchant brig, "Union," was placed on the lakes, but being considered too large (ninety tons), she

was laid up until the growth of trade again called her into service. Late in November, 1816, the schooner "Hercules" was wrecked in the lake between the Calumet rivers, and all on board perished. The first intelligence of the fatal catastrophe was communicated by finding the wreck of the vessel and the bodies of the passengers strewed along the shore. Several days, however, had elapsed before this discovery was made, and the bodies were so beaten and bruised by the spars of the wreck that the deceased could not be recognized by their features.

The marine interests of Chicago during these early years were centered in the Mackinaw trading boats, which belonged to the American Fur Company, and an occasional craft which stopped at the fort on Government business. During a few years succeeding the building of the fort, quite a number of vessels were built for lake service, but they mostly plied below Niagara Falls. In 1817, very soon after Fort Dearborn had been rebuilt, the schooner "Heartless" arrived off the lake shore. Attempting to run up the river she was beached in the sand. Efforts to float her proved unavailing, and there she remained a complete wreck, and the first one which occurred within sight of Fort Dearborn. A great event in the history of the marine of the upper lakes was the trip made by the first steamboat in the Fall of 1818. The "Walk-in-the-Water," built at Black Rock, arrived at Detroit on August 27th, her general appearance being that of a schooner with an engine and two side wheels. Her engine was not powerful enough to take her from the wharf at Black Rock up the rapids to the lake, so a dozen yoke of oxen, more or less, were employed to assist. The "Walk-in-the-Water" was wrecked in Buffalo Bay, November 1, 1821. That boat left Detroit July 31st of this year, and arrived at Chicago Bay, August 5th. Her tonnage was 342, and her engines were what is known as low pressure engines. Some time previous to 1819 the United States revenue cutter "Fairplay," arrived outside the bay, and then proceeded to enter the river. This task was successfully accomplished, and for the first time a sailing vessel other than a yawl or a Mackinaw boat was launched in the river just north of Fort Dearborn. A few years after the "Walk-in-the-Water" had been wrecked, various schooners, such as the "Chicago Packet" and the "Virginia," plied in these waters. In 1829 an Ohio distiller, who had touched at Mackinaw, Detroit and Milwaukee in a vain attempt to dispose of a load of whiskey, reached Chicago in his boat. After ridding himself of all but ten barrels he proceeded on his way to Grand river. But it was not this brisk trade of 1829 which gave an impetus to lake interests; the opening of communication between Lake Ontario and Lake Erie was what accomplished it. Communication was first established in 1831, via Fort Robinson and Chippewa, thence via Niagara river to Lake Erie. The first vessels which passed through were the "Erie" and the "Ontario," two American schooners, followed by the Canadian craft "Anne and Jane."

During March of 1831 an appropriation of \$5,000.00 was obtained for the erection of a light-house. Before it was fairly completed, on October 30th, the structure fell. Another tower forty feet high was completed in 1832. During the year 1831 three vessels arrived in Chicago. The first came May 20th, and took away the troops to Green Bay, leaving the garrison in charge of Colonel T. J. V. Owen, the Indian agent.

The steamer "Sheldon Thompson," brought General Scott's soldiers in July 16, 1832 — also the Asiatic cholera. At that time there was a fleet of vessels at anchor in the offing. In the following week the "William Penn" brought troops and supplies to Chicago. From the year 1832 different steamboats made occasional trips to Chicago. In 1833 three brothers, L. C., P. D., and Hiram Hugunin, sailed a yacht named the "Westward Ho," from Oswego to Chicago. After a voyage of nearly three months, they in August arrived outside the sand-bar, went ashore and hired eight yoke of oxen and hauled their vessel over the barricade into the river. The "Westward Ho" may therefore be considered the first lake boat belonging to private parties to fairly enter the river. The steamer "Michigan" was the first steamboat which entered the river below Dearborn street, arriving in June, 1834. The schooner "Illinois" arrived July 12, 1834, and two days later came the "Philip." In the Fall of 1834 the "Illinois" made her return trip from Cleveland, bringing provisions to the settlers at Chicago and Milwaukee. In 1834 three steamers landed at Chicago and two at Green Bay. Soon thereafter steamers commenced to make regular trips from Buffalo, touching most of the intermediate points. In July, 1839, a regular line of steamboats was established between Chicago and Buffalo, a boat leaving and arriving in Chicago every alternate day during the season of navigation. On the sixth of that month General Winfield Scott arrived in Chicago on the steamer "Illinois." The "Thomas Jefferson," "James Madison," "Buffalo" and "Illinois" were put upon the route.

Ship building, according to Capt. Peter F. Flood, who arrived from Oswego in June, 1835, commenced in Chicago in that year. The "Clarissa" was begun in the Spring of 1835 by Nelson R. Norton, but was not completed or launched until May 18, 1836. The "Detroit," Capt. John Crawford, was built at Milwaukee in 1836-37 for the Chicago trade, at a cost of \$50,000. This vessel was lost off Kenosha in November, 1837, after only six months' service. About this time (1836) an association of the then young, energetic and enterprising citizens was formed, and they commenced the building of the steamer "James Allen." It was completed in 1838, Capt. C. H. Case having charge of the construction. The boat was built for a company comprising George W. Dole and J. H. Kinzie. Capt. Pickering was Master of the steamer. The ship yard was on Goose Island. The "Allen" was built to be fast, and to run across Lake Michigan from St. Joseph to Chicago, in connection with the stage and mail lines. Her hull

was narrow and sharp in form and light in material. Two powerful low pressure, horizontal engines were put on the guards, on the main deck. The boilers were small and, on trial, proved to be insufficient. When the "Jim Allen" had steam up and started on her trial trip for St. Joseph she went out of Chicago at a speed that pleased as well as astonished her owner and designer. The first fourteen miles were run inside of an hour. Then the engines began to "slow up," and the voyage took about ten hours. Every effort was made to keep up the supply of steam to the two large engines, but the result was the same as experienced during the outward trip. For two seasons, notwithstanding the utmost exertions used, there was no improvement in the "Allen's" average rate of speed, and she was then sold and taken to the lower lakes.

The "George W. Dole" was also built by Capt. Case, soon after the completion of the "James Allen," and the two run together over the St. Joseph and Michigan City route. The former was sunk at Buffalo in 1856, having been previously changed into a sailing vessel. These were the first and only steamers built in Chicago previous to 1842. Capt. Case afterwards went to St. Louis.

In 1842, Capt. James Averall established a ship yard on the North Side, just below Rush street bridge, and very soon after Thomas Lamb commenced business near the same place. In July of that year the "Independence," the first propeller built on Lake Michigan, and the third one ever run on the lake, was launched from this ship yard. She was a large vessel for those days, being two hundred and sixty-two tons burden.

Abaft the cabin in the after-run was placed an engine with which to run a propeller wheel in case of head winds. The "Independence" was for years a successful sailing vessel, and it was claimed that she was the first steam barge of the lakes. She was wrecked in Lake Superior in 1853. In 1845-46 Capt. Averall built the brigantine "S. F. Gale" for George F. Foster. He also constructed many other vessels, and of large size for those days.

Until 1841 the steam marine held sway over the lakes, and steam-boats were the favorites. The old "North America," "Commodore Perry," "Illinois" and "Michigan" are well remembered.

The Fall of 1841 was marked by a series of obstacles and disasters in communicating with the lower lake ports, and public opinion commenced especially to be set against steamboat navigation. Many of the boats had already served their day and their large and ungainly side wheels were evidently too good marks for the heavy waves of the lake to miss. The old steamers "United States" and "Chesapeake" and other ancient craft, on their way from Lake Erie to Chicago, were disabled more or less, and in August occurred the lowering of the "Erie."

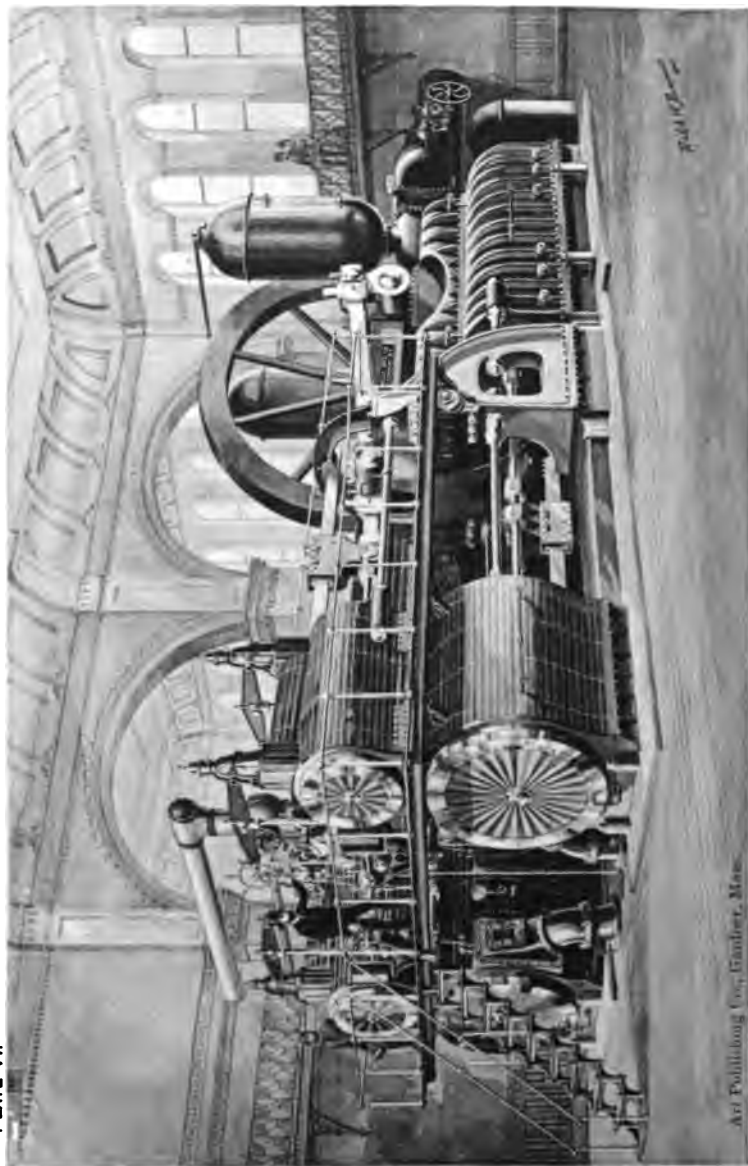
The "Vandalia," of Oswego, a sloop-rigged craft of one hundred and fifty tons, was the first propeller to appear on Lake Erie, and the "Independence," built in Chicago, was launched soon afterwards. Within the next two years over twenty propellers were placed upon the lakes, one, the "A. Rosseter," coming from Chicago. This boat was wrecked in Lake Michigan in 1855.

The ship-yards of Chicago were now beginning to present unusual signs of activity. In 1845 there were constructed the schooners "Maria Hilliard," "J. Young Scammon" and "Ark." In 1846 the barque "Utica," brig "Ellen Parker" and schooner "N. C. Walton." In 1847, eight schooners had been or were being built in Chicago, one brig and one propeller, and one brig owned by Chicago people. The leading ship-builders at this time were Messrs. Jordan, Miller and Connors. The latter afterwards formed a partnership with Riordan & Dunn, on the South Side, near Van Buren street bridge.

The Congressional act for the erection of light-houses was passed March 1, 1847, when \$3,500 was appropriated for Chicago. The year previous Chicago had been made a port of entry. In 1850 the district was divided, so that Milwaukee also became a port of entry.

Chicago's importance as a marine port was further recognized by Congress in an appropriation of \$10,000 for the erection of a marine hospital, the act being passed in 1848. The marine hospital was built on the east side of Michigan avenue, near Rush street bridge. This property was sold to the Michigan Central Railroad Company, and the building was destroyed during the fire of 1871.

From 1850 the building of vessels at Chicago and for the Chicago trade, and their arrivals and departures, formed so large an element of their commerce that it is impossible to trace each craft from the stocks to the bottom of the lake. It is not only impossible but unnecessary. In March, 1853, daily communication was established with Milwaukee by a line of boats, and in July two vessels of Ward's line were put on. The opposition line started the steamer "Garden City," August 1st, and a few days later direct communication, weekly, was opened between Chicago and Sault St. Marie. The "Garden City" was wrecked on a sunken reef off St. Mary river, May 19, 1854. Fortunately all the passengers were saved. At this time Chicago had no life boat, but was obliged to depend, in times of storm, when vessels were grounded on the bar and the lives of the crews in peril, upon such boats as steamers or propellers that might be in the harbor. After the terrible storm of April 27, 1854, however, by which seven vessels were wrecked and seven lives lost, almost within sight of Chicago, it was urgently suggested by the press of the city that the Government furnish a life-boat to the port. The Harbor Master, Capt. Edward Kelly, immediately undertook the circulation of a petition for a boat. In October two life-boats were



THE GASKILL COMPOUND CONDENSING HIGH DUTY PUMPING ENGINE.

HOLLY MANUFACTURING CO., LOCKPORT, N. Y., BUILDERS.

| | DUTY GUARANTEED. | ACTUAL DUTY ON TEST. | DIMENSIONS OF EACH ENGINE. | |
|---|------------------|----------------------|-----------------------------------|----------------|
| | | | H. P. Cylinders, | Stroke. |
| Two at North Side Station..... | 95,000,000. | 102,583,485. | 27 in. Diameter, | 40 in. Stroke. |
| One at Lake View Station..... | 105,000,000. | 110,632,166. | L. P. Cylinders, 54 in. Diameter, | 40 in. Stroke. |
| Two at 68th Street Station | 105,000,000. | 108,600,000. | Pump Plungers, 30 in. Diameter, | 40 in. Stroke. |
| Capacity of each Engine, 12,000,000 Gallons per 24 hours. | | | | |

furnished. Two months previous to the time when they were obtained, Col. Graham, in charge of the harbor improvements, had perfected his plan for the construction of a light-house. It was proposed to extend crib work from the North pier head north and then west, in order to protect the light from the influence of storms and from contact with spars of vessels. Within this projection he proposed to build the light-house, upon nine iron screw piles, eight of them forming an octagon thirty-three feet in diameter, with one in the centre. The light-house was to be in the shape of a right prism, five feet above the water level; above this it was to assume the form of a truncated pyramid, to the height of fifty-seven feet; upon this a frame work was to be erected supporting the watch-house and lantern, and giving seventy-three feet above the surface of the lake for the focal flame.

The increase in the tonnage of the district, including Chicago, Waukegan and Michigan City, in 1854, was very great. From the 1st of January to the 15th of May there were enrolled at the Custom-House forty-six vessels, with an aggregate tonnage of 9,496. With a few exceptions they were all owned in Chicago. The total tonnage of the district was 44,602.

The season of navigation for 1855 was disastrous, the storms raging with unusual fierceness during September and November. The season of 1856 was even more disastrous. In July, 1856, the first direct clearance was made from Lake Michigan for Europe by the steamer "Dean Richmond." The consignor was C. J. Kershaw, of Montreal, who intended to ship a full cargo of wheat from Chicago, but here he could only obtain 5,000 bushels and was forced to seek the balance, 9,320 bushels, at Milwaukee. The vessel left Chicago about July 14th, had her full cargo on the 18th, and sailed for Europe on the 19th; she arrived in Liverpool on the 29th of September. The trade between Chicago and Canada in 1857 amounted to \$222,000. Quite a noted foreign arrival was that of the "Madeira Pet," which left Liverpool April 24th, and arrived off Chicago harbor July 14, 1857, entering the river in the afternoon and anchoring at the North pier.

DOCKS AND WHARFING PRIVILEGES.

Closely connected with the river and harbor improvements of Chicago is the building of docks and the litigation in regard to wharfing property. For many years the land fronting on the river was such an object of controversy between the city and the alleged owners that no uniform dockage improvements were made. In 1833 the town first defined the wharfing privileges so that the owners of lots fronting on the river, where the streets run down to it, might use all but eighty feet of the thoroughfare for wharfing purposes, on payment of fifteen dollars per year. Stipulations were also made for the purchase by the corporation of any improvements on lots leased from the town.

In 1835, the Canal Trustees, under an Act of the Legislature, caused a strip of the land, lying south of the river (one hundred to two hundred feet wide), to be laid out into lots and leased for nine hundred and ninety-nine years. The lessees were to pay quite a consideration and an annual rental of one barley corn, and were also bound to build in two years a dock five feet wide, fronting on the river, which was to be kept open as a tow-path. The Trustees were required to dredge the river, ten feet in front of the docks, within four years from the sale, the lessees to erect good docks, five feet wide and three feet above the water, within two years from the time of the lease.

The sale took place November 26, 1835, at the store of Messrs. Jones, King & Co. Soon after the Trustees resolved that they would not dredge the river in making leases on North Water street and therefore they lowered the price of the lots. To aid in paying for leases, secured notes were taken for from three to six months, for the first quarter of the payment, and three years were allowed in which to pay off the balance. The sale was three times postponed, and when it did take place only six lots remained in market. In November, 1836, the time for payment was extended four months. Under these and other arrangements a large amount of wharfing property changed hands, and, within a decade, most of it was in dispute either between private parties and the city of Chicago, or between the city and the Trustees of the Illinois and Michigan Canal. The authorities rightly decided that something must be done, and done quickly, to settle the validity of titles, as on account of the bitter disputes some of the property had been abandoned entirely, and the benefits were being derived to a considerable extent by non-owners. The Act approved February 27, 1847, was designed to adjust these titles and settle these disputes. By this Act power was given the Common Council to vacate these streets, provided that nothing should be done to deprive anyone or any corporation (particularly the Trustees of the Illinois and Michigan Canal) of any property, without his or their consent. Persons or corporations having claims against the wharfage property were to file them in court, and to abide by its decision, unless an appeal should be taken within ninety days from the entering of the final decree. The principal reason why it was necessary that the title should be settled to this property, as soon as possible, was that the city desired to widen the river in several places, and it is evident that, in order to condemn land for that purpose, it was necessary to fix the ownership of the water lots. Power having been granted to the Common Council to vacate the water lots in 1847, that body proceeded by ordinance to describe the land in detail which it was proposed to condemn for the purpose of widening the river and of forming several artificial basins. The lots on South Water street were to be fifty-five feet, East Water and Market streets were to be united and called Market street, whose width was to be one hundred and forty feet, and lots

between Randolph and Madison streets were to be sold to owners who were required to excavate to within five feet of the channel of the river. To facilitate the construction of a commodious basin by the Canal Trustees, on the North Side, and to deepen and widen the channel of the main river, the city assented to various street alterations. In October, 1848, workmen commenced widening the river to the centre of North Water street.

As to the wharfing privileges of the West Side, in January, 1849, the Common Council ordered the dredging of the west bank of the South Branch from Madison street to Randolph, thence to Lake and Fulton. The city was to lay out a new street, extending from Madison street to Fulton, and discontinue that part of West Water street lying between the east line of the new street and the river. As these improvements were made and the dockage of the city somewhat extended, ordinances were passed imposing fines upon anyone who should occupy or obstruct this property without authority from the Common Council. Although these energetic measures had the effect of inducing the improvement of water property, up to 1857 there was only about six miles of dockage built along the Chicago river and its branches, including the improvements in the artificial basins.

Like other works of public utility, the improvements and protection of Chicago harbor were accomplished only after many years of experiment and at great expense. The canal and harbor were twin enterprises. The former would be almost worthless if there were no clear way of exit into Lake Michigan; and without a good harbor to shelter vessels from the storms which raged over the lake, it was early seen that Chicago could never become a port of entry. Previous to the voyages of Joliet and La Salle, the accretions that had fallen to the bottom as they rested upon the ice piled up in the river's mouth, added to the natural formations caused by the lake currents, had formed a large sand-bar, and at times blocked navigation. La Salle, from his observations in 1682, failed to see how a shallow cut canal could supply navigable water for the Illinois river during the dry season, or if that should be accomplished how commerce would be benefited, since even in a rainy season the surplus water which flowed over the portage from the Desplaines (the Chicago he calls it) would not cover the sand-bar at the mouth of the channel. It is reasonable to suppose that all the early travelers noticed and commented upon this impediment to navigation, but until Fort Dearborn became one of the most famous of the government trading posts no decisive movement was made for the improvement of the river's mouth. In 1805 the agent at the United States Indian Factory, which was established that year, suggested to the Government the necessity of clearing away the obstruction, in a limited way, from the mouth of the Chicago river. But his idea of a harbor was just as limited as his dreams of what the location was destined to be. All that was necessary to insure a safe entrance into the river was a narrow ditch, which might permit the easy passage of a Mackinaw boat up to the very door of the trading house; and this effected, his

conception of improvement was fulfilled. In a few years, however, keen observers traveling over the western country saw the geographical advantages which this muddy point possessed, and realized and prophesied its future importance. The canal enterprise was therefore not only pressed to public notice but the ideas of a new generation in regard to a harbor expanded prodigiously. In 1816 came Colonel Long, and he had something to say about the canal and the harbor. During the next year Samuel A. Storrow, judge advocate, traveled through the West, and like many another enterprising man since then, visited Chicago and talked about it. He admired the wonderful portage which separated the waters of the great lakes from the waters of the great river, and said that the canal should be a matter of national concern. The Judge also described the site of Fort Dearborn, and, as all observers were beginning to do with unanimity, bewailed the fact that "it had no advantage of harbor, the river itself being always choked, and frequently barred." Then, in 1818, William Darby, a New York author, took a trip through the West, and by him there was further expatiating upon the wonderful portage and the importance of the canal. The United States Commissioners, with their surveyor, Mr. Sullivan, were then running their lines to mark the lands which had been ceded by the Indians in 1816. A map was therefore made of Chicago and vicinity. The main river flowed northeast and east for about three-fifths of a mile, to a point about five hundred feet west of the parade ground. From that point it commenced to make a complete bend around Fort Dearborn, and entering upon its direct course south flowed between the great sand-bank on the east and the marsh on the west, entering the lake (when it could) about eight hundred yards south of a line drawn east from the present southwest corner of River street and Michigan avenue. Some two hundred and fifty yards from the confluence of the river and the North branch a small creek entered the main channel from the north, while from the south, at a point north of the present Wabash avenue, another stream entered the river. Opposite Fort Dearborn a small bayou stretched back from the river to the northwest. The entire length of the main river in 1818 was about one and one-half miles. No suggestion was made, however, to improve the harbor. It was reserved for H. R. Schoolcraft, Secretary of the Indian Commission which visited Chicago in 1821, to first call attention to the matter as a measure of general utility and humanity. It is observed that he expressed some doubt as to whether a harbor could ever be formed, but his plan was definite, and bordered on the prophetic.

"We allude," he says, "to the formation of a harbor on Lake Michigan where vessels may lie in safety while they are discharging the commodities destined for Illinois, or encountering the delays which commerce frequently imposes. It is well known that after passing the Manitou Islands there is no harbor or shelter for vessels in the southern part of Lake Michigan, and that every vessel which passes into that lake after the month of September runs an imminent hazard of ship-wreck. Vessels bound to Chicago come to anchor

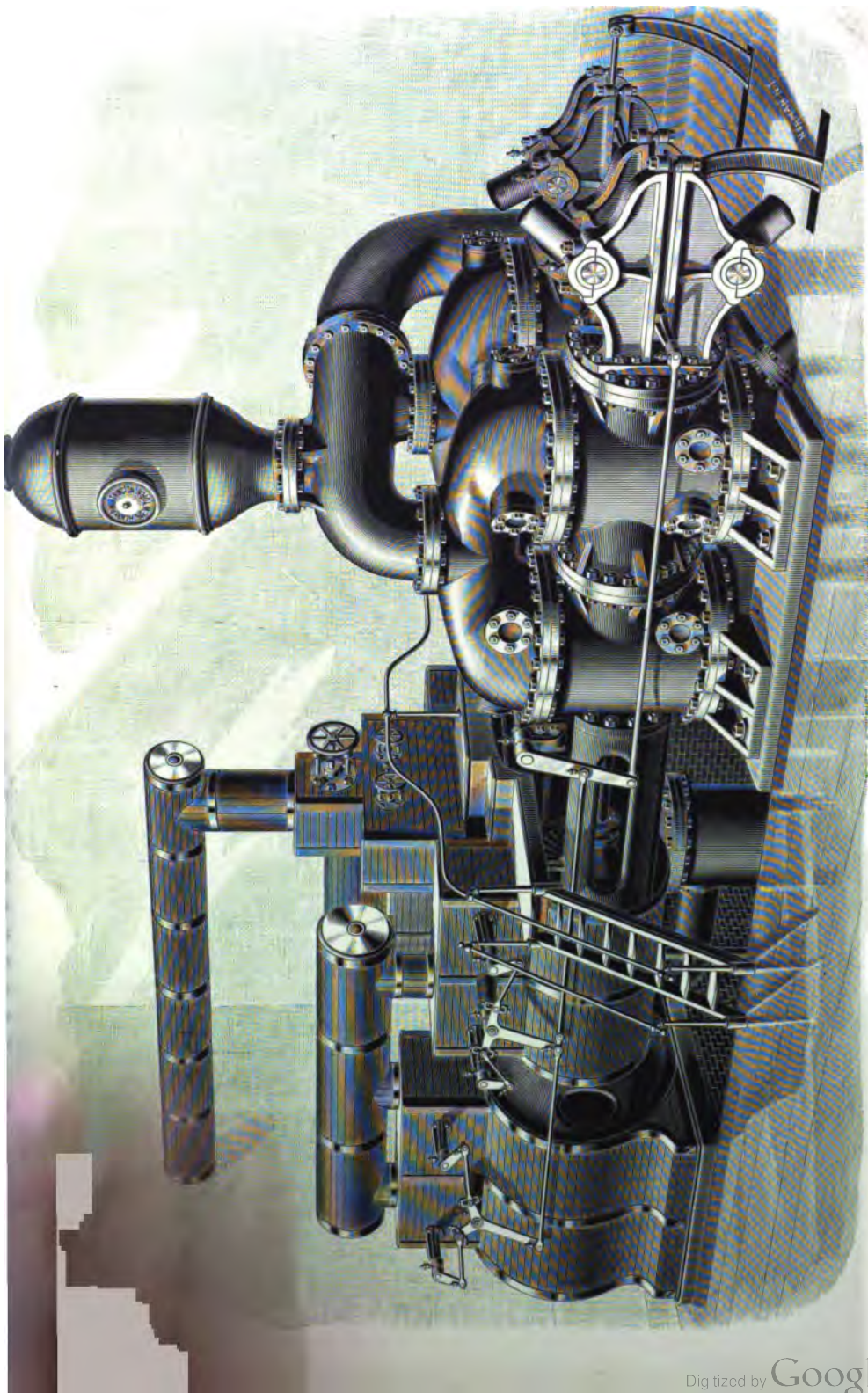
upon a gravelly bottom in the lake, and discharging with hasten on their return. The sand which is driven up into the creek will admit boats only to pass over the bar, though enough to allow vessels to lie above. Among the expedients proposed for keeping the mouth of the river clear of sand, the most ingenious, and perhaps practical, is that of turning the Konomic (Calumet) by a canal of sixteen miles into Chicago, above the fort, and by the increased body and pressure of water drive out the accumulated sands. It is yet somewhat problematic whether a safe and permanent harbor can be constructed by any effort of human ingenuity, upon the bleak and naked shores of the lake, exposed as they are to the most furious tempests. And we are inclined to think it would be feasible to construct an artificial island off the mouth of the Chicago creek, which might be connected by a bridge with the main land, with more permanent benefit to the country at large, if not with less expense, than to keep the Chicago clear of sand. Stone for such a work is abundant near the entrance into Green Bay, and if built on a scale sufficiently liberal it would afford convenient sites for all storehouses required."

The Government breakwater, with the sand-bars which it has been the means of forming, may be likened to Schoolcraft's bridge connecting the artificial island with the main land, and his storehouses to the huge elevators which now cover those convenient sites. But when Schoolcraft wrote there was little to be seen but an old stockade fort and John Kinzie's house; and although his general idea of protecting the river's mouth appears to have been the correct one, he did not see the necessity of forming an artificial channel, so that the river's course could be made direct to the lake, and its current thereby strengthened. This idea was left, however, to be clearly brought out by the engineers who made the surveys for the canal route in 1830. In February of that year, William Howard, U. S. C. E., proposed a plan for "improving the mouth of the Chicago river." His idea was to close the original outlet, and cut a channel through the conformation of sand and gravel (which prevented the river from flowing easterly) in nearly a direct course; north and south piers were to extend out into the lake in a direction south of east, the artificial channel being something over one thousand feet north of the natural outlet of the river. The map, and a well conceived correspondence between residents of the settlement and influential members of Congress, caused general attention to be called to the improvement of the harbor in connection with the building of the canal. When in August of this year (1830) the town of Chicago was surveyed, provision was made for a public levee on the general plan adopted by Western river villages, and extending along South Water street. But the system applicable to the light-draught river boats was not applicable to the large lake craft. So the levee plan was abandoned, and the location became a part of the wharfing property which

in later years gave the corporation so much trouble. The continued efforts made to improve Chicago's harbor bore fruit in 1833. For the purpose of obtaining an appropriation a map was sent to Congress, designed to show what a growing town Chicago was. It indicated the course of the river, the platted section of the town, and the contemplated subdivisions. This map undoubtedly assisted in securing the appropriation of \$25,000, which was obtained from Congress March 2, 1833. The works were immediately put in charge of Major George Bender, his assistant superintendent being Henry S. Handy. Samuel Jackson was foreman of construction, and held the position for some time. A. V. Knickerbocker was appointed clerk, and continued so to act for a number of years. Mr. Jackson arrived from Buffalo, June 27, 1833, in company with Joseph Chandler and Morgan L. Chapley, and work was at once commenced on the south side of the river, in front of the fort. The first stone was procured about three miles up the South branch. The ties and timber were cut upon the Calumet, and were rafted down the river into the lake and thence along the shore into its harbor, under the direction of Jones & McGregory, the contractors for the wood work. Major Bender resigned October 31, 1833; but under his direction between four hundred and five hundred feet of the south pier were finished. Lieutenant James Allen took charge of the works in January, 1834, serving until September, 1838. During this season the appropriation of \$32,801 was applied chiefly upon the work of extending the North pier, and as a rule the structure was kept from two hundred to three hundred feet ahead of the South pier. The most of the stone was taken from the quarry opened up on the South branch. Subsequently ties and timber were procured in Wisconsin and Michigan, with the exception of a small lot taken from the North branch in 1834-35. The appropriation of 1835 amounted \$35,800, and under Lieutenant Allen's energetic management the work progressed most favorably. By the close of the season the North or weather pier had been extended 1,260 feet into the lake, where a depth of twelve feet of water was found, and most of the structure had been completed to its full height of seven feet. The pier-head was not constructed, for the reason that a new bar commenced to form in the Spring at a point in the lake shore about half a mile from the pier, and was now running obliquely in a direction which threatened to form an obstruction across the harbor entrance, a short distance from the end of the work.

Already the depth of the water on the line of the pier had been reduced from ten and twelve feet to eight.

At the end of the North pier, constructed in 1834, and for sixty feet beyond, nine feet of sand had been washed away, leaving a clear clay bottom at a depth of eighteen feet from the surface. Many vessels had already found shelter there while discharging their cargoes. The South pier in 1835 was extended 500 feet, making its total length into the lake 700 feet. During



THE WORTHINGTON HIGH-DUTY PUMPING ENGINE

AT THE 68TH STREET PUMPING STATION, CHICAGO WATER WORKS

DIMENSIONS: H. P. CYLINDERS, 33 INCHES; L. P. CYLINDERS, 66 INCHES; PLUNGERS, 33 INCHES; STROKE, 48 INCHES
GUARANTEED CAPACITY AT 100 FEET PISTON SPEED, 12,000,000 GALLONS IN 24 HOURS
GUARANTEED DUTY AT SAME SPEED. 110,000.000

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1833 a portion of the South pier had been constructed across the river and bar. The two piers enclosed a channel of 200 feet in breadth, containing from three to seven feet of water, and all was ready for the dredging machines.

Up to that time the current of the river had made no great impression upon the sand in the channel. Lieut. Allen noticed that when the season's work was completed, \$6,900 of the \$32,000 would remain to be applied in 1836, and that \$6,000 had been reserved for dredging purposes. Since the opening of navigation until September, 212 vessels had arrived and discharged their cargoes at the harbor.

Captain Allen's map, drawn in October, 1837, indicates that the South pier had been finished from a point opposite Fort Dearborn across the old channel of the river and so on out into the lake, a total distance of 1,850 feet. Some 500 feet of the lake and with the bulk-head was unfinished or only projected. The shore end of the North pier for 700 feet had not been finished, but it had been pushed out into the lake for 1,200 feet, with fully 400 feet of pier and bulk-head projected, in order to shut out the outlet sand-bars which now extended beyond the end of this, the weather pier. Of the old sand-bar, between the river and the lake, only a small tongue remained, about 175x112 feet. Although the eastern bank of the original was mostly washed away, its western boundary (the swamp east of the fort) was visible then. In 1838 \$30,000 was appropriated, but it now became evident that the improvement was progressing under a wrong plan. The prevailing currents of the lake had been rapidly depositing sediments in the shape of sand-bars, which were backing up against the North pier, their general trend being a little more to the north than the old sand-bar. Within the outer sand-bar, which in 1837 extended beyond the finished portion of the North pier, had been formed two bars. By the continued process of deposits these were lifted further and further into view, and the intervening space filled with sand until the second bar of 1837 virtually became the shore line of 1838. Since the commencement of improvements in 1833, the shore line had extended 700 feet out into the lake along the North pier, and was rapidly pushing farther in that direction. It was only a question of a short time before a third sand-bar, which had already formed beyond the pier, would become a new shore line; and it would seem, unless the direction of the work was changed, that the task of protecting the harbor entrance would be an indefinite contest between the governmental purse and the natural forces of wind, wave and currents. As the sand-bars and shore line extended out into the lake, the pier, in order to be of any benefit, would have to keep pace with its progress. It was therefore decided to change its direction $25\frac{1}{2}$ degrees more to the north, but the appropriation of 1838 having been expended in extending the under work 405 feet in the new direction, and dredging the bar already formed, it was found that this plan was no better than the old. The

bar continued to form, not only because of the currents of the lake, but the wind, blowing from the north across the pier, carried the sand from the beach into the harbor itself. Vessels now made the entrance with great difficulty in fair weather, and were entirely excluded from shelter during storms. At the commencement of operations in 1839, it was found that the bar had extended across the entrance to the channel and 450 yards beyond. In the latter part of March, 1839, Lieut. (now General) A. A. Humphreys, who had succeeded Capt. Allen, was relieved at his own request, by Capt. T. J. Crain. Under him Capt. J. H. Leavenworth acted as agent in charge of the harbor works, the only thing attempted up to 1842 being to preserve the protections already built. Under him the superstructure of the pier was extended in the new direction, and then further appropriations were cut off. In April the Board of Engineers decided that all expenditures upon the harbor would be only for such work as might be necessary to protect what had been completed up to that date. A few days later lake captains were notified of the formation of the bar across the harbor's entrance.

Under date of September 1, 1839, when work was entirely suspended, Captain Crain reported as still unfinished several hundred feet on the west end and 405 feet on the east end of the North pier; also 250 feet on the west and 308 feet on the east end of the South pier.

In 1843, the General Government appropriated \$25,000 for the harbor Repairs and new works were effected under the superintendence of Captain George B. McClellan. In 1844, \$30,000 were appropriated, and during that year and the next the height of the North pier was increased from one to two feet. In 1852, \$20,000 were appropriated and expended in improving the inner harbor. Another estimate was made for the year ending June, 1853, but the subject passed unheeded by Congress, and was not reconsidered for the fourteen years intervening between 1852 and 1866. During this period slight improvements continued to be made on the inner harbor, under the Act of July 21, 1852. The works of the harbor from 1848 to 1854 were under the superintendence of Lieut. J. D. Webster, of the Topographical Engineer Corps. Lieut.-Col. J. D. Graham was in active charge of the harbor improvements from April, 1854, to 1855, and from December 11, 1856, to April 20, 1864. During his term of service the deepening of the river, at the cost of the city, was effected. He came two years after the appropriation of 1852 was made and ceased connection with the work two years before the appropriation of 1866 was granted. The improvements effected during the season of 1854 consisted of the dredging of a ship canal through the bar which obstructed the direct entrance of vessels to the inner harbor of over seven feet draught, repairing harbor machinery and preparing for the defence of the piers beyond the line of accretion on the north sides. Work was commenced in May, and the channel completed in July. Before the canal was cut, vessels from the south drawing over nine feet of water, were

compelled to run down one-fifth of a mile south of the North pier-head, and then double on a northwardly course to enable them to enter the harbor. Vessels drawing twelve feet of water were compelled to make a double of the bar a half mile south of the North pier-head. This oftentimes occasioned serious delays, as the north winds which brought them south opposed an attempt to sail northwest to the entrance of the harbor, and in fact, compelled them to anchor off the bar until the wind changed or a steamboat was hired to tow them into the inner harbor. In October, 1854, the Common Council ordered the excavation of the bank to be begun, under the grant made by Congress for the purpose of widening the river. The City Superintendent began immediately, but the officer in charge of Fort Dearborn, Col. Graham being then absent, informed him that further action by Congress or the War Department was necessary before any work could be done, and forbade him to proceed. A few weeks' work was accomplished on the excavation later, but it was not regularly begun until the following year. The line for the excavation at Fort Dearborn, for widening the river, was not located until August 29, 1855. The line, as laid, gave the river an additional width of 150 feet below the Lake House ferry. It also gave a new shore on the south to a portion of the river, and rendered the turns easy for shipping. The whole of River street was thus secured. In 1856 the improvement of the harbor at Fort Dearborn was accomplished at a cost of \$40,000, while the improvements in the vicinity of blocks 6, 7 and 14, original town, cost \$43,000. The estimate furnished to Congress of funds required for repairing piers and otherwise improving the harbor, for the fiscal ending June 30, 1857, was \$138,516.68.

At the time of the survey of April, 1857, the North pier had been extended about 2,800 feet into the lake. In the map drawn during that year is shown the tide gauge at the shore end of the pier. Some 500 feet of the shore end of the pier remained uncompleted, while over 1,500 feet had been constructed, provision having been made for two openings. The map of April, 1857, also shows the pier of the Illinois Central Railroad Company, commencing 400 feet from the shore end of the South pier, extending 1,300 feet south, 700 feet west, about 150 feet southwest, and then about 1,200 feet south again. The water basin beyond the pier was in progress of being filled with earth.

SUMMARY OF DEVELOPMENTS—HARBOR OF CHICAGO,

FROM 1865 TO THE GREAT FIRE OF 1871, INCLUSIVE.

YEAR 1865.

But little work was done at the entrance to the Chicago harbor during this year; the outer end of the pier, extended the previous year, was built up and finished and the pier made of uniform height. Careful soundings made at the entrance disclosed the fact of the formation of a bar there, rendering the extension of the pier a necessity, for which purpose an appropriation was made by Congress, and the necessary preparations for extending the pier and dredging the channel were made by Major J. B. Wheeler, U. S. Engineer, in charge of outer harbor.

Inside the Chicago river, "Goose Island," at the junction of the North and South branches, was removed by dredging, and a channel fifty feet wide and ten feet deep below low water was cut in the north part of the South Branch.

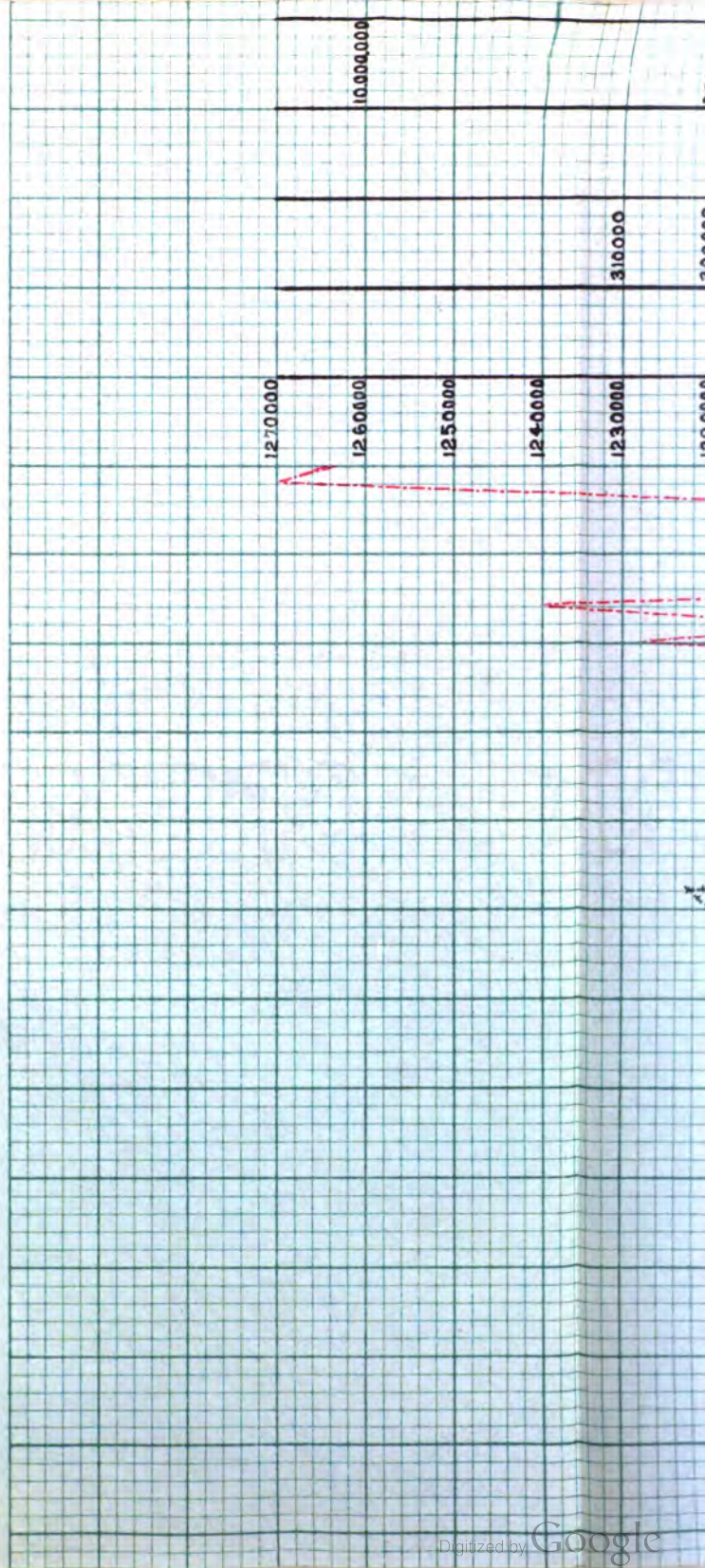
A survey for the establishment of dock lines from the city limits to the mouth of the harbor was commenced by order of the Council. City Engineer E. S. Chesbrough says, in this regard: "One important result of the survey, thus far, is that the South Branch could be made 175 feet wide throughout. It was hoped that it could have been made 200 feet wide, but owing to existing improvements this would be impracticable without enormous expense; besides, it may be doubted if it would be practicable to preserve a sufficient depth of water for navigation if the width should be much greater than 175 feet, which seems to be the outside limit of what nature designed for the South Branch.

"The lot lines and the original meander lines of the river, both of which are so necessary in making assessments relative to the proposed widening of the river, present peculiar difficulties and require a local knowledge of records and landmarks possessed by a very small number of surveyors."

EXPENSES INCURRED IN 1865 AND 1866.

| | | | | | | | |
|-------------------|---|---|---|---|---|---|-------------|
| Chicago harbor, | . | . | . | . | . | . | \$ 4,154 50 |
| Dock line survey, | . | . | . | . | . | . | 4,243 28 |

PLATE XI



SUMMARY

FROM

But little work this year; the outer pier was up and finished and a new one made at the entrance. The extension of the extension was made by the pier and dredge Engineer, in charge.

Inside the Chi and South branches and ten feet deep Branch.

A survey for the mouth of the harbor was made by Engineer E. S. Chesbro, thus far, in the survey, throughout. It was owing to existing conditions of expense; but to serve a sufficient depth greater than 175 feet designed for the South Branch.

"The lot lines are so necessary in the river, present conditions and landmarks

Chic
Do

| | |
|---|-------------|
| Dredging bar at mouth of harbor (Fox & Howard, contractors), | \$19,478 80 |
| Dredging Goose Island, 13,549½ yards, | 8,087 12 |
| Dredging South Branch from Halsted street to Canal Locks, 32,456.45 | 23,115 11 |

The plan for the improvement of the Chicago river by deepening the Illinois and Michigan canal, having been approved by the Council, was acted on, the necessary surveys were made, and the Trustees of the canal contracted with the city relative to the enlargement of the canal between the Bridgeport lock and the lock at this side of Lockport, a distance of twenty-six miles, so that there should be a continuous movement of the water of the river through the canal, at the rate of 24,000 cubic feet per minute, at a low stage of water in the lake.

Contracts were executed with Messrs. Fox, Howard & Walker for the construction of sections 1 to 44 inclusive, at thirty-three cents per cubic yard for the earth-work, and two dollars per cubic yard for rock excavation; and with Messrs. Sanger, Steele & Co., for the construction of sections 45 to 64 inclusive (rock excavation exclusively), at \$1.64¾ per cubic yard. The whole work was to be done by September 1, 1868.

YEAR 1866-1867.

The bar at the mouth of the harbor extended still further southward and increased in height and breadth, and it was understood as the intention of Col. Wheeler, U. S. Engineer Corps, to have the bar dredged away as soon as it might be necessary, to preserve navigation.

A channel fifty feet wide and nine feet deep at low water was dredged from Indiana street bridge to near North avenue, and later in the season was cut as far north as Wabansia avenue.

The dock line survey was completed from the mouth of the main river to Bridgeport on the South Branch, and to the city limits on the North Branch, with the exception of some minor details. The Board of Public Works stated its conviction that the South Branch should be widened to 200 feet to meet the probable wants of commerce. The North Branch could be so widened with but little expense.

EXPENDITURES FOR HARBOR.

| | |
|----------------------------------|------------|
| Chicago harbor, | \$7,854 79 |
| Dock line survey, | 9,195 11 |
| Dredging North Branch, | 8,301 68 |

The work of deepening the Illinois and Michigan canal did not progress satisfactorily, owing to the prices not being remunerative to the contractors; both contracts (that of Fox, Howard & Walker and that of Steele, Sanger & Co.) were declared annulled and new proposals were advertised for, to be submitted May 1, 1867.

The pumping at Bridgeport to free the river from offensiveness was ordered to commence June 21st, and was suspended September 5th, costing \$3,398.80. The tolls lost to the Canal Trustees, by reason of closing the canal November 1, 1866, instead of November 15th, amounting to \$8,642.99, were refunded to them by the city, thus enabling the work of deepening the canal to commence half a month in advance of the stipulated time.

YEAR 1867-1868.

The dock line survey was completed about the first of October. The following expenditures were incurred:

| | |
|---|------------|
| Dredging main river and South Branch, . . . | \$2,109 78 |
| Dredging North Branch, | 7,107 32 |
| Dock line survey, | 4,480 33 |

Under the new contracts for the deepening of the Illinois and Michigan canal, work for the year amounted to—

| | |
|-----------------------------|----------------------|
| Earth excavation, | 247,460 cubic yards. |
| Rock excavation, | 87,146 cubic yards. |
| Costing, | \$267,173 06 |

Of this total the sum of \$64,080.50 was paid Fox, Howard & Walker on the old contract work. These expenses were defrayed out of the proceeds of the sale of two hundred and eighty-seven River Improvement bonds, \$274,503.42, and the sinking fund proportion of the sewerage tax of 1866, \$3,883.65. These sums with some other minor items brought the total available as the River Improvement Fund to \$310,289.64. The surveys for this work cost \$4,434.75, and the pumping at Bridgeport cost \$15,000.00.

YEAR 1869.

All important expenditures by the city for the preservation of the entrance to the harbor have ceased since the National Government has resumed not only the control but the actual execution of the necessary works for this purpose.

During the year vessels frequently grounded in the river, and a contract for the necessary dredging was made with Messrs. Fox & Howard, at the

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posals re

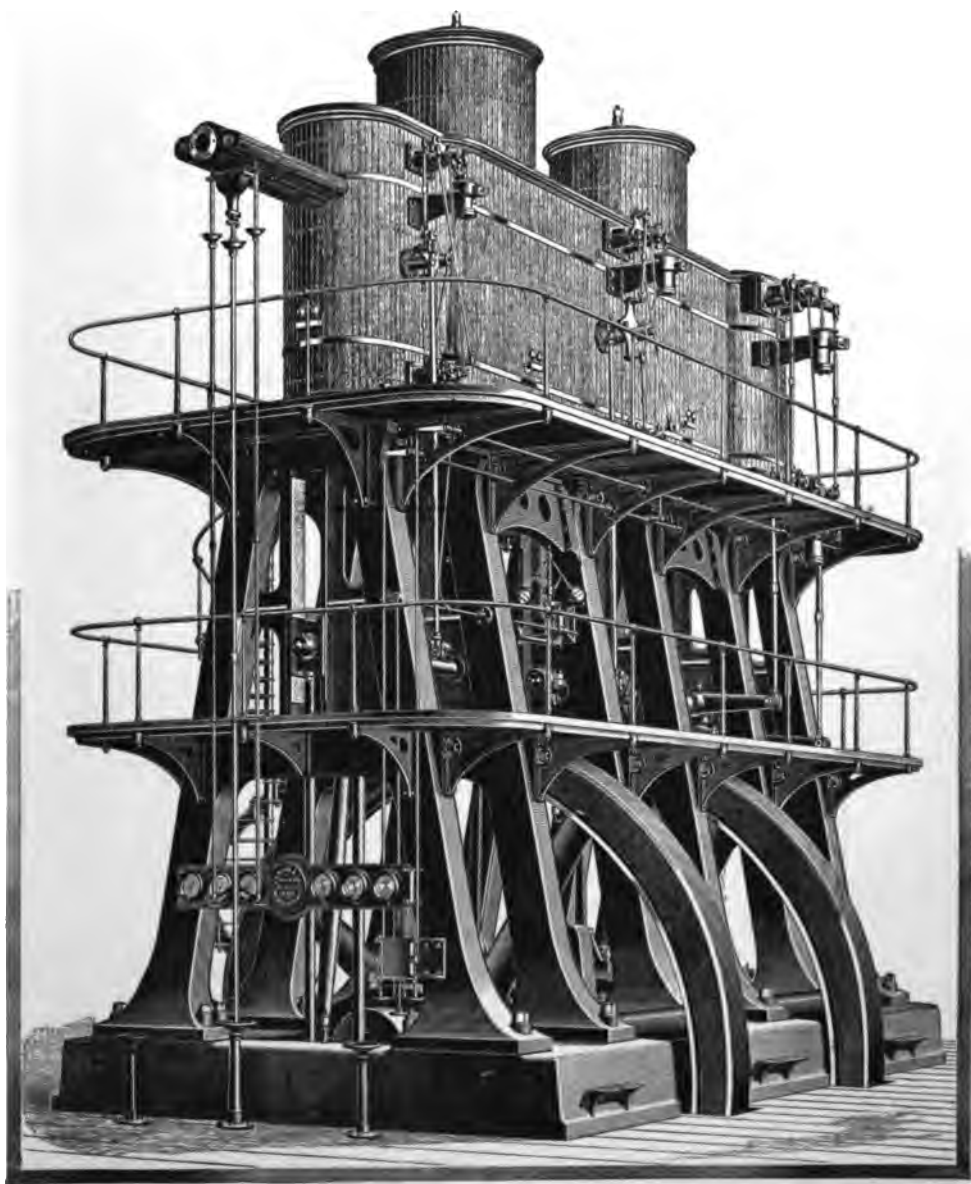
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REYNOLDS' TRIPLE EXPANSION PUMPING ENGINE.

BUILT BY THE EDW. P. ALLIS CO., MILWAUKEE, WIS.

Two of these Engines are for the Central Station, Harrison Street.

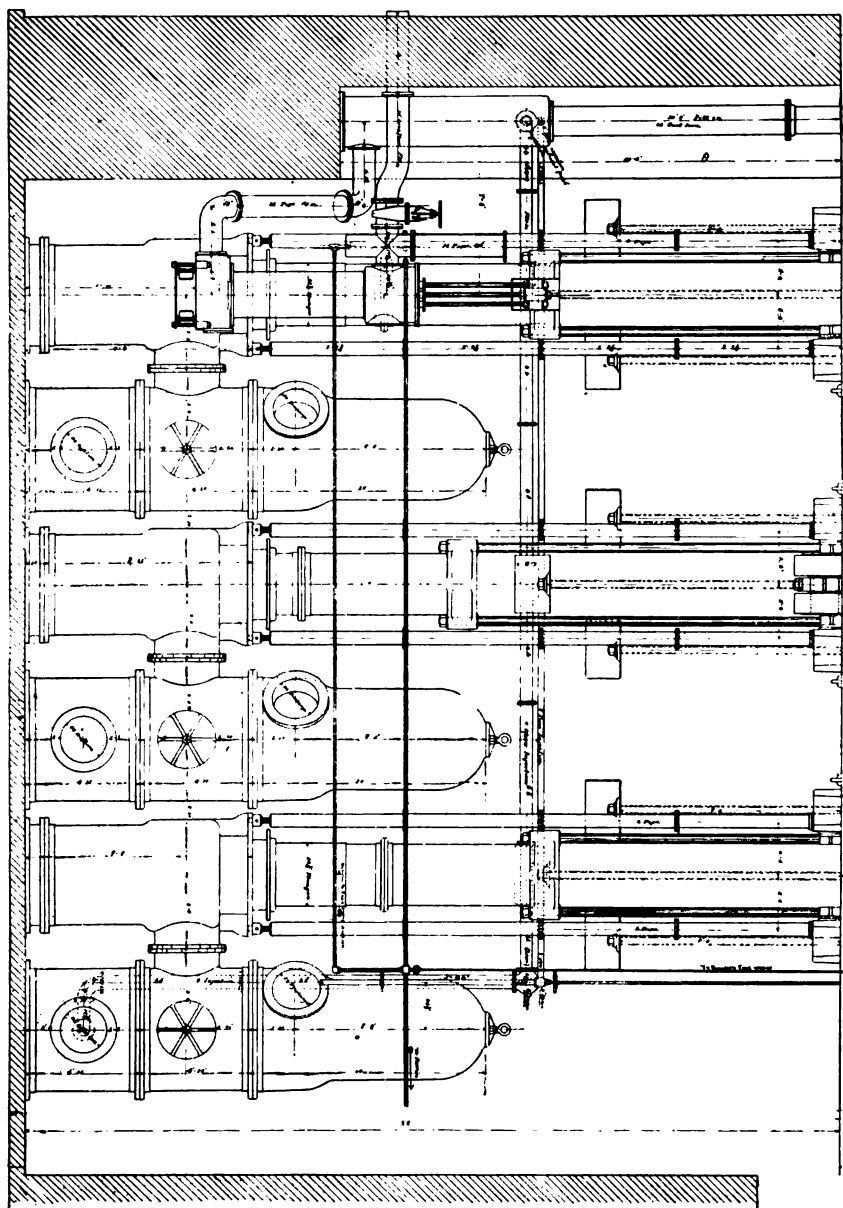
Three of these Engines are for the South Side Station.

Size of Steam Cylinders, 27", 46", 70" diameter by 60" stroke.

Three Single Acting Plungers to each Engine, 32 $\frac{1}{2}$ " diameter each by 60" stroke.

Guaranteed Capacity, 18,000,000 gallons daily.

Guaranteed Consumption, 100,000 foot pounds per 100 pounds anthracite coal.



Section of Pump Well showing arrangement of Pumps below engine room floor.
Reynolds' Triple Expansion Pumping Engine.

rate of forty-two cents per cubic yard for all dredging between the mouth of the river and Twelfth street on the South Branch and Chicago avenue on the North Branch, and sixty-nine cents per yard for all dredging beyond these two streets. Cost of the work under contract was \$63,559.07.

A channel was also opened in the South fork of the South Branch from the Canal Locks to the grounds of the Rolling Mills, paid for in part by a special assessment levied several years before. This channel was nearly, but not quite, completed in the Summer and Fall of 1868. The expenditure to the close of the fiscal year was \$13,338.33.

Additional contracts for work on sections 17 to 44 inclusive were let during the year for the improvement of the Chicago river, by deepening the Illinois and Michigan canal. The work was to be wholly completed by March 31, 1871. The original limitation of three years granted by the Canal Trustees was extended for a term of three years more, and the work was carried on energetically, the following being the amount of material removed during the year :

| | |
|-----------------------------|----------------------|
| Earth excavation, | 390,234 cubic yards. |
| Rock excavation, | 138,601 cubic yards. |
| Rip-rap wall, | 3,294 cubic yards. |
| Retaining wall, | 314 cubic yards. |

The disagreement between the Canal Trustees and the Board of Public Works was adjusted by the arbiter, Hon. John M. Wilson, and as the result of that action the difference about the cost of the pumping at Bridgeport for the cleansing of the Chicago river was settled by the payment by the city of the following sums :

| | |
|--|--------------|
| Summer of 1867, | \$ 17,875 21 |
| Summer of 1868, | 11,178 88 |
| Total expenditures River Improvement Fund, | 537,401 54 |
| Total expenditures Chicago harbor, | 82,405 63 |

WASHINGTON STREET RIVER TUNNEL.

The specifications and plans for this work were completed and a contract executed with Stewart, Ludlam & Co. for \$271,604.00. They commenced work October 2, 1866, between Clinton and Canal streets, and soon after, October 11th, on the east side of the river near Market street. They began the eastern coffer-dam on December 6, 1866, and after removing 9,800 cubic yards of excavation from the whole work the contractors abandoned it. On July 20, 1868, the work was re-let to J. K. Lake, John Clark and Charles B. Farwell. About six weeks after abandonment by the former

contractors, the bracing at the excavation east of the river gave way on June 14th; the sides caved in, entailing damages to the neighboring property. In 1868 this work, under the new contracts, progressed fairly, though during most of the Winter the work was suspended. On October 28, 1868, the contractors gave notice that they would commence the construction of the coffer-dam for the west half of the tunnel, and on January 1, 1869, the work was substantially completed, and the occasion made one of celebration.

YEAR 1869-70.

The impure condition of the water in the North branch of the Chicago river, owing to the great quantities of refuse from distilleries and other establishments which entered it, invited the closest attention of the Board of Public Works, and City Engineer Chesbrough discussed, in a general way, plans for abating the nuisance, and recommended a covered canal or conduit circular in form and twelve feet in diameter, on the line with Fullerton avenue, with the requisite machinery for driving water in either direction near the North Branch. Such a canal would be fourteen feet below low water; would be two miles long, and a head of four and one-half feet could be made to discharge 24,000 cubic feet per minute, or sufficient to change all the water in the North Branch and main river every thirty-six hours. The estimated cost was \$480,000, including machinery. The machinery recommended was a three hundred horse-power engine and a propeller wheel so placed as to draw or drive the water in the direct line of the canal.

LA SALLE STREET RIVER TUNNEL.

The contract for the construction of this tunnel was let to R. E. Moss, George Chambers and A. J. McBean, and they commenced the construction of the north coffer-dam on November 3, 1869, and by the 31st of March, 1870, they had completed the masonry of the tunnel from the center of the river to fifty feet north of the north dock line.

In some respects this tunnel is a decided improvement on that at Washington street. The deepest grade instead of being one in sixteen is one in twenty, making the approaches longer. The south one begins about forty feet north of Randolph street and the north one terminates at Michigan street.

Much anxiety was caused in the earlier part of the year from the lack of water at numerous places in the channel of the river, so much so, that the Board of Public Works reported specially the state of the facts to the City Council, urging an immediate appropriation for dredging. The work

was then prosecuted continuously, and no further serious interruptions occurred in the navigation of the harbor. The amount thus expended was \$56,035.73.

RIVER IMPROVEMENT.

The work of deepening the Illinois and Michigan canal was prosecuted successfully throughout the year, the contracts for which expired March 31, 1871.

The following quantities of work were done :

| | |
|-----------------------------|----------------------|
| Earth excavation, | 568,663 cubic yards. |
| Rock excavation, | 81,387 cubic yards. |
| Retaining wall, | 444 cubic yards. |
| Rip-rap wall, | 5,535 cubic yards. |

The funds available to meet these expenses accrued as follows :

From sale of eight hundred and forty-four River

| | |
|---|--------------|
| Improvement bonds, | \$804,691 25 |
| River Improvement Sinking Fund, | 50,751 53 |
| Amount of tax for interest, | 96,457 32 |
| Stone sold, | 1,352 00 |
| | <hr/> |
| | \$953,252 10 |

The expenditures from April 1, 1869, to March 31, 1870, were as follows :

| | |
|---|--------------|
| Miscellaneous expenses, including \$15,499.58 for pumping at Bridgeport, | \$ 32,613 84 |
| Expense of survey and salaries, | 11,709 92 |
| Paid for work done under contracts, | 639,567 15 |
| Interest account, | 86,274 64 |
| | <hr/> |
| Total expenditures, | \$770,165 55 |
| Expenditures Chicago harbor during year, | \$ 65,485 12 |
| For land damages at Adams street bridge, | 22,738 00 |

The total true cost of these land damages was stated to be \$92,738.00.

YEAR 1870-1871.

A liberal appropriation for the improvement of the inner harbor having been expended, a good condition was obtained, the largest vessels being capable of navigating the river from Archer avenue on the South Branch to Clybourn place on the North Branch.

The following expenditures occurred during the year :

| | |
|--|--------------|
| Chicago harbor, including an item dredging, | |
| \$106,429.41 | \$120,265 08 |
| Land damages at Polk street bridge, | 12,592 56 |
| Land damages at Adams street bridge, | 3,186 29 |
| Land damages at Indiana street bridge, | 5,000 00 |
| Land damages at Twenty-second street bridge, | 11,609 00 |

LA SALLE STREET TUNNEL.

On March 31, 1871, the entire length of the work from the beginning of the north approach, 1,467 lineal feet, was completed, leaving 423 lineal feet to be made. The amounts expended on this account were as follows :

| | |
|-----------------------------------|--------------|
| Miscellaneous expenses, | \$ 41,865 05 |
| Contract work, | 282,361 22 |

IMPROVING THE RIVER.

The work of deepening the Summit division of the Illinois and Michigan canal, which was undertaken by the city, was completed, the work having been urged forward vigorously.

The cost of the work accomplished to the first of April, each year, was as follows :

| | |
|-----------------|--------------|
| 1866, | \$ 20,255 25 |
| 1867, | 144,501 89 |
| 1868, | 326,843 13 |
| 1869, | 560,121 37 |
| 1870, | 748,023 09 |
| 1871, | 1,182,692 40 |

Total cost to April 1, 1871, exclusive of interest, \$2,982,437 13

Estimate for remaining work, . . \$130,000 00

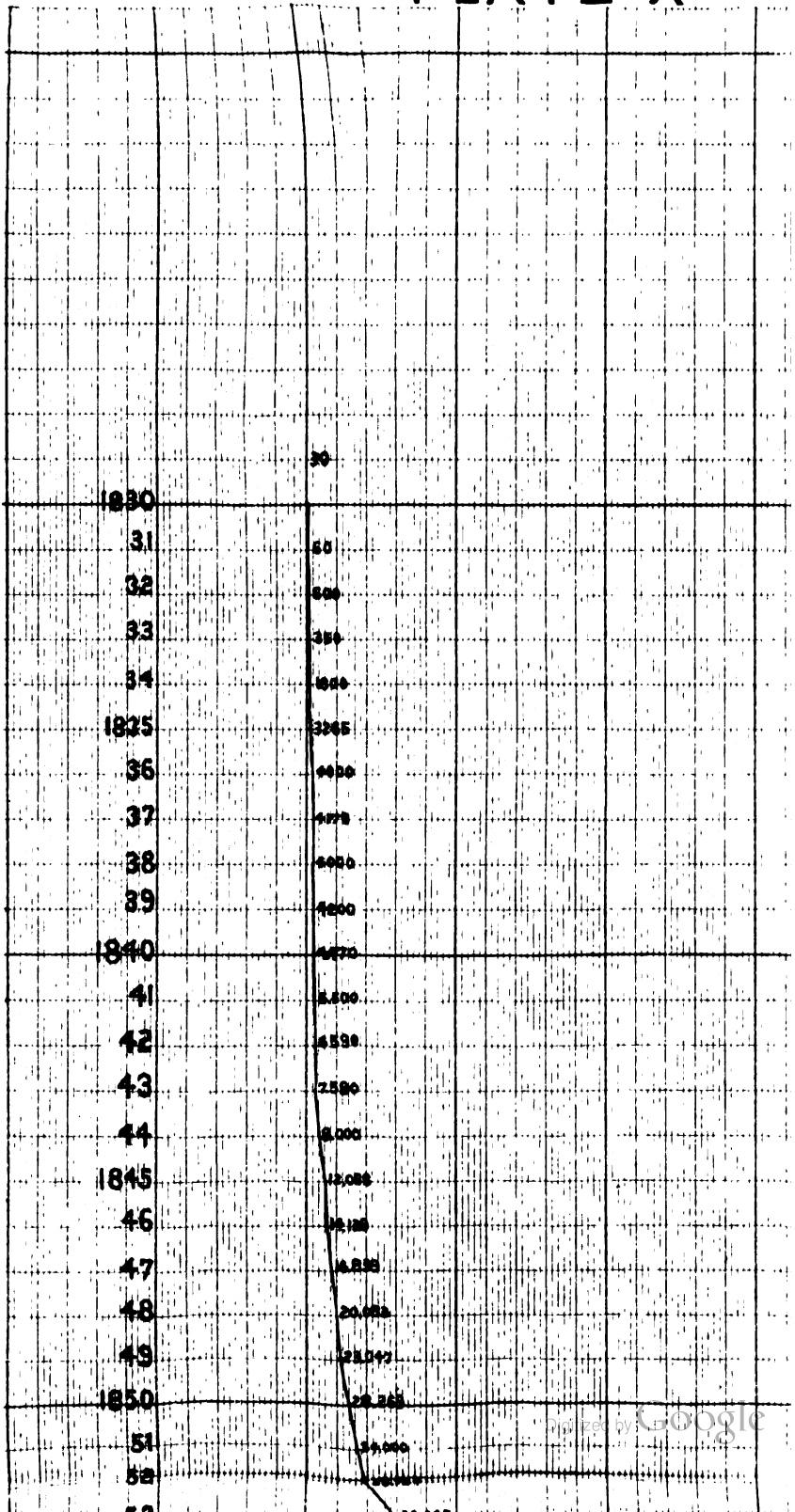
Discount on canal bonds, . . . 95,682 61

Paid for tolls lost, 43,501 07

269,183 68

Total estimated cost, \$3,251,620 81

PLATE X



The work was finally accomplished on the afternoon of Saturday, July 15, 1871, by the cutting of the temporary dam which was thrown across the canal at Bridgeport. Quite a strong current was at once created in the canal, and an entire change of the water in the main river and the South Branch was effected in about thirty-six hours.

YEAR 1871-72.

The great fire of October 8 and 9, 1871, inflicted material injury upon the harbor. Several vessels and scows were sunk, and being abandoned by their owners, the city had to remove them.

All the plats of the river survey which were made under direction of the Board in 1866-67-68, were destroyed.

The following is an estimate of damages resulting from the fire, inflicted upon public property relating to the harbor :

| | |
|-------------------------------------|--------------|
| Bridges and viaducts, | \$204,310 00 |
| River tunnels, | 6,000 00 |
| Docks at ends of streets, | 6,000 00 |
| Removing sunken hulls, | 7,300 00 |

During the year the work of dredging was done at localities in the main river and branches, entailing an expenditure of \$30,750.62, which included an item of \$2,000 for raising vessels.

ADDITIONAL EXPENDITURES.

| | |
|---|-------------|
| Land damages and dredging at Twenty-second street bridge, | \$ 7,584 47 |
| Land damages and dredging at Adams street bridge, | 2,843 99 |
| Land damages and dredging at Polk street bridge, | 15,795 00 |

The total amount expended by the city on the deepening of the Illinois and Michigan canal was \$3,300,883.71, the city having a lien upon the earnings of the canal of \$2,500,000, with interest.

The total original cost of the Washington street tunnel was \$517,000, and the cost of maintaining it for the past year was \$3,851.85.

The original cost of the La Salle street tunnel was \$566,276.48, and the cost of maintaining it for the nine months ending April 1, 1872, was \$2,729.80.

YEAR 1872-73.

During the year \$7,623.74 was expended for dredging the North Branch, and \$25,239.52 for the South Branch. The work of widening the river at Polk street bridge, commenced in 1871, was completed, costing, with the expenditure of 1871, \$28,525. The river was widened just above Rush street bridge by cutting off a piece of land that projected into the channel at that point, costing \$16,057.20. The widening of the street next south of the Chicago river and east of Rush street bridge, known as River street, was effected during the year; the amount of damages paid therefor to W. M. Hoyt was \$2.750. Total expense Chicago Harbor, \$46,739.06, in which are included two items: removing obstructions \$6,011.73, and building docks \$2,056.62.

BRIEF SKETCH OF THE DEVELOPMENT OF BRIDGE CONSTRUCTION IN THE CITY OF CHICAGO, 1829-1890.

The first means established for crossing the Chicago river was by a ferry ordered in 1829 by the Commissioners of Peoria. This ferry was located where the Lake street bridge crosses the river; Archibald Clybourne and Samuel Miller were appointed ferrymen. A scale of rates was made for crossing: foot passengers, six and one-quarter cents; man and horse, twelve and one-half cents; horse and pleasure vehicle, fifty cents; one-horse wagon, twenty-five cents; two-horse wagon, thirty-seven and one-half cents; each bushel of grain, six and one-quarter cents.

About 1833 a floating bridge, consisting of rough logs, was thrown over the South Branch just north of Randolph street, by help of the United States troops stationed at Fort Dearborn. The citizens contributed toward the structure \$286.20, the "Pottawattomies" \$200.00. After three years this bridge had become unfit for further use, but was repaired and served until 1840.

The first bridge over the North Branch was constructed in the Summer of 1832, about where the present Chicago & North-Western Railway bridge is located, near Kinzie street. It was for foot passengers only.

The first draw-bridge over the main branch of the river was placed at Dearborn street in 1834. The timber used in this bridge was cut from land adjoining Michigan avenue. The structure was about 300 feet long, with a sixty-foot passage for vessels.

The first steamboat that passed through it was the "Michigan." The bridge was removed July, 1839. During this year two ferries were in operation, at Clark and State streets, respectively. Considerable rivalry existed among the citizens as to the location of ferries and bridges.

April 18, 1840, the work of driving piles for Clark street bridge commenced. The estimated cost of the structure was \$3,000, contributed mainly by interested citizens of the North division. This bridge, as well as those at Wells, Kinzie and Randolph streets, was afterwards swept away by the flood and ice of 1849. In 1840 a float-bridge was built at the same crossing. In 1841 a similar bridge was built at Wells street.

In 1849 a bridge was built at Madison street; also a new one at Randolph street.

While the new bridge at Lake street was in progress of construction in 1849, an injunction was applied for and the motion tried before Judge Drummond, of the United States District Court. The injunction was refused, the Court deciding that the "right of free navigation is not inconsistent with the right of a State to provide means of crossing the river by bridge or otherwise, when the wants of the public require them." Up to 1856 most of the bridges built were paid for from funds contributed by property-owners whose property would be benefited by such improvement.

Previous to the flood of 1849 the city did little to regulate bridges or bridge tenders. In April, 1847, an ordinance was passed prohibiting teams from stopping on a bridge or within forty feet of one. There were continual complaints against the slowness and indifference of bridge-tenders. In October, 1848, the Harbor and Bridge Committee were instructed to inquire into the "incompetency of bridge-tenders." And yet, though B. MacArthur charged a specific bridge-tender with keeping his bridge open for an hour longer than was necessary, and although the majority of citizens sustained Mr. MacArthur in his warfare, the erring bridge-tender retained his place.

Bridge-tenders were not even required to give bonds "for the faithful performance of their duties" until 1852.

In 1853 there were safe thoroughfares over the river at Madison, Clark, Kinzie, Wells, Van Buren, Randolph and Lake streets and Chicago avenue, besides the railroad viaduct over North Water street. Bridge-tenders were appointed for these structures, and, through the ordinance of March, 1852, they were put each under \$500 bonds to do their duty.

The bridges mentioned were constructed largely by the subscriptions of those owning property in the vicinity, but there were many delinquents, as those who did pay learned to their cost.

By the ordinance of January 13, 1854, bridge-tenders were made special policemen, and their bonds were increased from \$500 to \$2,000. Under this ordinance they were required merely to open and close their bridges as quickly as possible. But, so far as is known, they were never punished for not doing it, and they seemed to have been the supreme judges of the meaning of that expression, "as quickly as possible."

In 1854, the pivot bridge across the river at Clark street was built, at a cost of \$12,000. It contained a double carriage-way and sidewalks. During the Summer and Fall of 1855 both of the arches gave way. Heavy iron plates were bolted to them and the structure was made quite substantial. During this and the succeeding year the repairs amounted to \$2,145.55.

The ordinance of June, 1855, regulated the order in which vehicles should cross the bridges. The vehicles running direct with the bridges were to have precedence in crossing, while vehicles on side streets to the right were to follow, and lastly were to come those which entered from the left.

The Common Council decided in October, 1855, to build a bridge across the main branch at Fort Dearborn ferry ; but the decision was with a proviso that \$35,000 be first subscribed, which wrecked the project completely. During that year, Twelfth street bridge was built anew, at a cost of \$2,877.16. Repairs were also made upon the bridges at Wells, Van Buren, Kinzie and Clybourne streets and Chicago avenue.

In 1847 the Council ordered a ferry across the river at the foot of Rush street and harbor. Later, ferries were established near the Lake house and Twelfth street.

In 1856, these institutions of bygone days were in operation at Randolph and Wells streets and Chicago avenue. They were merely of a temporary character. Up to 1856 the bridges were built mostly at the expense of the citizens whose property would be enhanced in value by such improvements.

The plans for Madison street bridge were agreed to in that year. As it was proposed to construct it at municipal expense, a vigorous protest was entered against such a proceeding. During the year the old bridge at Randolph street was moved and a new one substituted at a cost of \$20,811. Wells street bridge was also completed during the Summer at a cost of \$20,000 ; it was then the longest draw-bridge in the West, being 190 feet in length and eighteen feet above water. In June, 1856, the city contracted with Harper and Tweedale to build an iron bridge across the river at Rush street to cost \$48,000 ; \$18,000 to be paid by the city and \$30,000 by the Galena & Chicago Union and the Illinois Central Railroad Companies. It was the first iron bridge in the West. The Polk street draw-bridge, the float bridges at Indiana and at Erie streets, were built during 1856-7, costing about \$5,000 each. In 1857 the Madison street bridge was built for about \$30,000. *This was the first bridge built entirely at the city's expense.*

A complete list of the bridges erected by the city authorities during the year 1856 to the present day follows :

CHICAGO

| BRIDGES. | APPROACHES. | | | | SUPERSTRUCTURE. | | | |
|------------------------------|---------------------------|---------|--------|------------|-----------------|-------|-------------------------|--------|
| | Type. | Length. | Width. | Operation. | Material. | Date. | Contractors. | Cost. |
| Rush st. | Curb and filling | 211. | ..... | Hand | Iron | 1856 | Harper & Tweeddale | 54,000 |
| Rush st., rebuilt. | Curb and filling | 211. | ..... | Hand | Wood | 1864 | Fox & Howard | 8,900 |
| Rush st., rebuilt. | Curb and filling | 211. | 33. | Hand | Iron | 1872 | Detroit Bridge Co. | 15,600 |
| Rush st., rebuilt. | Curb and filling | 240. | 59. | Steam | Iron | 1884 | Rust & Coolidge | 49,370 |
| State st. .... | ..... | 184. | 35. | Hand | Wood | 1864 | Fox & Howard | 32,000 |
| State st., rebuilt. .... | ..... | 184. | 36. | Hand | Iron | 1872 | Keystone Bridge Co. | 22,500 |
| State st., rebuilt. | Viaduct | 184. | 39. | Steam | Steel | 1887 | A. Gottlieb & Co. | 24,440 |
| Dearborn st. .... | ..... | 60. | ..... | Hand | Wood | 1834 | ..... | ..... |
| Dearborn st. | Viaduct | 190. | 35.5 | Steam | Iron | 1872 | Fox & Howard | 22,830 |
| Clark st. .... | ..... | ..... | ..... | ..... | Wood | 1840 | ..... | 3,000 |
| Clark st. | Curb and filling | ..... | ..... | Hand | Wood | 1857 | Chapin & Co. | ..... |
| Clark st., rebuilt. | Curb and filling | 180. | 32. | Hand | Comb'n | 1866 | Thos. Mackin | 14,200 |
| Clark st., rebuilt. | Curb and filling | 180. | 37.5 | Hand | Comb'n | 1872 | Fox & Howard | 32,000 |
| Clark st., rebuilt. | Curb and filling | 215 | 59. | Steam | Steel | 1889 | Variety Iron Works | 69,475 |
| Wells st. | Curb and filling | ..... | ..... | ..... | Wood | 1841 | ..... | 3,000 |
| Wells st. | Curb and filling | 190. | ..... | Hand | Wood | 1856 | Harper | ..... |
| Wells st., rebuilt. | Curb and filling | 190. | 35. | Hand | Wood | 1862 | Fox & Howard | 5,200 |
| Wells st., rebuilt. | Curb and filling | 190. | 35.25 | Hand | Iron | 1872 | Fox & Howard | 22,830 |
| Wells st., rebuilt. | Curb and filling | 220. | 59. | Steam | Steel | 1888 | Keystone Bridge Co | 86,750 |
| Lake st. .... | ..... | ..... | ..... | ..... | Wood | 1849 | ..... | ..... |
| Lake st. | Girder | 185. | ..... | Hand | Wood | 1859 | N. Chapin | ..... |
| Lake st., rebuilt. | Girder | 185. | 33. | Hand | Comb'n | 1868 | Fox & Howard | 11,450 |
| Lake st., rebuilt. | Girder | 220. | 59. | Steam | Iron | 1885 | Detroit Bridge Co | 57,533 |
| Randolph st. .... | ..... | ..... | ..... | ..... | Wood | 1849 | ..... | ..... |
| Randolph st. | Curb and filling | 153 | 32.5 | Hand | Wood | 1864 | L. B. Boomer | 5,000 |
| Randolph st., rebuilt. | Curb and filling | 157. | 34. | Steam | Iron | 1874 | Keystone Bridge Co. | 10,850 |
| Washington st. | Girder | 157. | 31.5 | Steam | Iron | 1875 | American Bridge Co | 11,495 |
| Madison st. .... | ..... | ..... | ..... | ..... | Wood | 1849 | On piles | ..... |
| Madison st. | Curb and filling | 155. | ..... | Hand | Iron | 1857 | Gaylord | 42,000 |
| Madison st., rebuilt. | Curb and filling | 157. | 31.5 | Hand | Iron | 1875 | American Bridge Co | 11,495 |
| Madison st., rebuilt. | Girder, curb and filling | 197. | 52. | Steam | Steel | 1891 | Riber & Conley | 52,500 |
| Adams st. | Girder, curb and filling | 160. | 31. | Hand | Comb'n | 1869 | Fox & Howard | 37,860 |
| Adams st., rebuilt. | Girder, curb and filling | 160. | 32. | Hand | Iron | 1872 | Keystone Bridge Co. | 14,800 |
| Adams st., rebuilt. | Girder, curb and filling | 259. | 59. | Steam | Steel | 1880 | King Bridge Co. | 68,500 |
| Jackson st. | Viaduct | 280. | 59. | Steam | Steel | 1888 | Detroit Bridge Co. | 76,500 |
| Van Buren st. | Curb and filling | 163. | ..... | Hand | Comb'n | 1867 | Fox & Howard | 13,470 |
| Van Buren st., rebuilt. | Curb and filling | 163. | 34. | Hand | Comb'n | 1872 | E. Sweet, Jr. & Co | 13,300 |
| Harrison st. | Curb and filling | 175. | 31. | Hand | Iron | 1877 | American Bridge Co. | 24,875 |
| Polk st. | Viaduct and girders | 154. | 31. | Hand | Comb'n | 1860 | Fox & Howard | 29,450 |
| Polk st., rebuilt. | Viaduct and girders | 154. | 31. | Hand | Iron | 1872 | King Iron Bridge Co. | 12,635 |
| Taylor st. | Viaduct | 161.4 | 32. | Hand | Iron | 1872 | Keystone Bridge Co. | 14,480 |
| Twelfth st. | Viaduct | 202. | 32.75 | Hand | Comb'n | 1868 | Fox & Howard | 44,450 |
| Twelfth st., rebuilt. | Viaduct | 220. | 59. | Steam | Steel | 1886 | Chicago Forge & Bolt Co | 41,150 |
| Eighteenth st. | Viaduct, curb and filling | 175. | 32 | Hand | Comb'n | 1868 | Fox & Howard | 28,500 |
| Eighteenth st., rebuilt | Viaduct | 186.5 | 35. | Hand | Iron & steel | 1888 | King Bridge Co. | 21,500 |
| Canal st. | Timber | 200. | 35. | Hand | Howe Truss | 1891 | A. Gottlieb & Co. | 11,900 |

BRIDGES.

SUBSTRUCTURE.

| Material. | Contractors. | Cost. | REMARKS. |
|----------------------------------|--------------------------|-------------------------------------|---|
| Stone on piles | Harper & Tweedale | Included in sum first given | |
| Stone on piles | Repaired | | Burned in fire of 1871. |
| Stone on piles | Original substructure | | |
| Concrete and masonry on piles | Detroit Bridge Co. | \$8,874.00 | |
| Piles | FitzSimons & Connell Co. | \$70,673.57 | |
| Masonry on piles | Fox & Howard | Included in superstructure contract | Burned in fire of 1871. |
| Old work repaired | Keystone Bridge Co. | \$27,000.00 | New turn-table built in 1880 by Keystone Bridge Co., at a cost of \$2,500.00. |
| Piles | A. Gottlieb Co. | Included in superstructure cost | |
| Masonry on grillage | 1887-8 | | This was the first drawbridge built over the Chicago River. |
| Piles | FitzSimons & Connell Co. | \$30,000.00 | Superstructure originally at Wells street until 1888. |
| Piles | Chapin & Co. | | Swept away by the flood of 1849. |
| Piles | Repaired, Thos. Mackin | Included in superstructure cost | Burned in fire of 1871. Substructure repaired in 1871 by Earnshaw & Goble at a cost of \$4,000. |
| Masonry on piles | Fox & Howard | Included in superstructure cost | |
| Concrete and masonry on piles | FitzSimons & Connell Co. | \$62,500.00 | Superstructure removed to Webster avenue in 1889. |
| Piles | | | |
| Piles | Harper | Included in superstructure cost | |
| Piles | Repaired, Fox & Howard | Included in superstructure cost | Burned in fire of 1871. |
| Masonry on piles | Fox & Howard | \$26,182.00 | Superstructure removed to Dearborn street in 1888. |
| Concrete and masonry on piles | FitzSimons & Connell Co. | \$59,000.00 | |
| Ctr. pier piles, stone abutments | N. Chapin | | The first means for crossing the Chicago river was a ferry, located at the present site of the Lake street bridge, and first established in 1829. |
| Ctr. pier piles, old abutments | Fox & Howard | Included in superstructure cost | |
| Concrete and masonry on piles | FitzSimons & Connell Co. | \$69,726.41 | |
| Piles | | Included in superstructure cost | In 1833 a crossing was constructed of rough logs near the present site of the Randolph street bridge, which was used until 1840. |
| Piles | L. B. Boomer | | |
| Piles | Repaired | | |
| Masonry and concrete | Keystone Bridge Co. | Included in superstructure cost | Substructure built for city by W. Chicago St. Ry. Co. Superstructure formerly at Madison st., moved 1891. |
| | 1890 | \$46,099.06 | |
| Masonry on piles | Gaylord | Included in superstructure cost | |
| Masonry on piles | Repaired | | |
| Concrete and masonry on piles | American Bridge Co. | \$3,505.00 | Superstructure removed to Washington street in 1891. |
| Ctr. pier piles, stone abutments | Fox & Howard | | |
| Masonry on piles | Fox & Howard | Included in Superstructure cost | Burned in fire of 1871. |
| Concrete and masonry on piles | FitzSimons & Connell Co. | \$31,264.00 | Superstructure removed to Taylor street in 1889. |
| Concrete and masonry on piles | FitzSimons & Connell Co. | \$54,720.84 | |
| Ctr. pier wood, stone abutments | FitzSimons & Connell Co. | \$49,806.67 | |
| Masonry on piles | Fox & Howard | \$4,800.00 | Burned in fire of 1871. |
| Piles | E. Sweet, Jr. & Co. | | |
| Piles | American Bridge Co. | Included in superstructure cost | |
| Piles | Fox & Howard | Included in superstructure cost | |
| Masonry on piles | E. Sweet, Jr. & Co. | \$23,970.05 | East abutment rebuilt in 1882 by E. F. Goble & Co., at a cost of \$8,573.00. |
| Concrete and masonry on piles | Chicago D. & D. Co. | \$25,500.00 | Superstructure from Adams st. piers, abutments and protection built at expense of W. Chic. St. Ry. Co. |
| Masonry on piles | Fox & Howard | Included in superstructure cost | |
| Concrete and masonry on piles | FitzSimons & Connell Co. | \$59,850.53 | |
| Piles | Fox & Howard | Included in superstructure cost | |
| Concrete and masonry on piles | Chicago D. & D. Co. | \$41,288.06 | |
| Piles | Chicago D. & D. Co. | \$7,141.23 | |

CHICAGO

| BRIDGES. | APPROACHES. | | SUPERSTRUCTURE. | | | | | |
|------------------------------------|---------------------------|---------|-----------------|------------|------------|-------|--------------------------|-------------|
| | Type. | Length. | Width. | Operation. | Material. | Date | Contractors. | Cost. |
| Twenty-second st. | Curb and filling | 210. | 32. | Hand | Comb'n | 1871 | Fox & Howard | \$28,900.00 |
| Archer av. (Og'n Slip). | Timber | 115. | 40. | ..... | Comb'n | 1871 | Fox & Howard | 15,000.00 |
| South Halsted st. | Timber | 150. | 31.25 | Hand | Wood | 1861 | Fox & Howard | 8,500.00 |
| S. Halsted st., rebuilt. | Timber | 150. | 33. | Hand | Iron | 1872 | King Iron Bridge Co. | 15,900.00 |
| Main st. (Throop) ..... | ..... | 152. | 29. | Hand | Comb'n | 1868 | Fox & Howard | 12,450.00 |
| Deering st. | Timber | 200 | 30. | Hand | Iron | 1889 | Shailer & Schniglaue | 17,080.00 |
| Ashland av., West Fork | ..... | 160. | 20.5 | Hand | Iron | 1883 | Detroit Bridge Co. | 10,500.00 |
| South Western av. .... | ..... | 125. | 21.3 | Hand | Comb'n | 1869 | F. E. Canda | 13,000.00 |
| Fuller st. .... | ..... | 125. | 19.5 | Hand | Wood | 1865 | N. Chapin & Co. | 7,500.00 |
| Fuller st., rebuilt. | Curb, filling and timber | 127. | 19.5 | Hand | Comb'n | 1877 | G. W. James | 4,210.00 |
| Archer av. | Timber | 152. | 28.75 | Hand | Comb'n | 1870 | Fox & Howard | 11,500.00 |
| Douglas av. | Timber | 141.5 | 21.3 | Hand | Comb'n | 1874 | Fox & Howard | 9,800.00 |
| Douglas avenue (35th st.), rebuilt | Timber | 170. | 35. | Hand | Howe Truss | 1891 | Shailer & Schniglaue | 10,545.00 |
| Ashland av., S. Fork. .... | ..... | 152. | 18.5 | Hand | Wood | 1871 | Fox & Howard | 5,000.00 |
| Ashland av. (canal) ..... | ..... | 128. | ..... | Fixed | Iron | 1886 | Pittsburgh Bridge Co. | 3,621.64 |
| Western av. (canal) ..... | ..... | ..... | ..... | Fixed | Wood | 1870 | C. Fitzsimons | 1,840.00 |
| Western av. (canal) ..... | ..... | 118. | 18. | Fixed | Iron | 1882 | Massillon Bridge Co. | 5,900.00 |
| Western av., W. Fork. .... | ..... | 125. | 21.3 | Fixed | Iron | 1869 | F. E. Canda | 13,000.00 |
| Kedzie av. (canal) ..... | ..... | 108. | ..... | Fixed | Iron | 1879 | Massillon Bridge Co. | 2,879.00 |
| Kedzie av., W. Fork. .... | ..... | 109. | 16. | Fixed | Iron | 1881 | Massillon Bridge Co. | 3,765.00 |
| Crawford av. .... | ..... | ..... | ..... | Fixed | Wood | ..... | ..... | ..... |
| Laurel st. | Curb and filling | ..... | ..... | Hand | Iron | ..... | ..... | ..... |
| Kinzie st. | Timber | 170. | 31.5 | Hand | Comb'n | 1870 | Fox & Howard | 15,850.00 |
| Indiana st. | Viaduct and girder | 163. | 32. | Hand | Comb'n | 1869 | Fox & Howard | 48,800.00 |
| Erie st. | Viaduct, curb and filling | 200. | 32. | Hand | Comb'n | 1871 | Fox & Howard | 30,000.00 |
| Chicago av. | Curb, filling and viaduct | 175. | ..... | Hand | Comb'n | 1867 | Fox & Howard | 26,700.00 |
| Chicago av., rebuilt. | Curb, filling and viaduct | 175. | 32.5 | Hand | Comb'n | 1872 | Fox & Howard | 20,850.00 |
| North Halsted st. | Timber | 140. | 20. | Hand | Wood | 1866 | Fox & Howard | 7,000.00 |
| N. Halsted st., rebuilt. | Timber | 140. | ..... | Hand | Comb'n | 1877 | W. B. Howard | 4,190.00 |
| N. Halsted st. (canal) | Timber | 228. | 32. | Hand | Iron | 1874 | Fox & Howard | 29,945.00 |
| Division st. | Timber | 180. | 29. | Hand | Comb'n | 1869 | Fox & Howard | 15,794.84 |
| Division st. (canal) | Timber | 176. | 29. | Hand | Comb'n | 1870 | Fox & Howard | 17,700.00 |
| Weed st. (canal) | Timber | 150. | 33. | Hand | Iron | 1891 | Shailer & Schniglaue | 8,296.00 |
| North av. | Timber | 145. | 19.5 | Hand | Wood | 1865 | N. Chapin & Co. | 3,700.00 |
| North av., rebuilt. | Timber | 150. | 29. | Hand | Comb'n | 1877 | Conro, Carkin & Co. | 7,149.00 |
| Clybourn place. | Timber | 140. | 32. | Hand | Comb'n | 1873 | Fox & Howard | 13,700.00 |
| Webster av. | Timber | 180. | 37.5 | Hand | Comb'n | 1872 | Fox & Howard | 32,000.00 |
| Fullerton av. | Timber | 225. | 20. | Fixed | Wood | 1874 | Fox & Howard | 1,490.00 |
| Fullerton av. | Timber | 125. | 20. | Hand | Comb'n | 1877 | I. W. Lavin & Co. | 2,977.50 |
| North Western av. | Timber | 296. | 38. | Hand | Howe Truss | 90-1 | Binder & Seifert | 14,000.00 |
| Belmont av. .... | ..... | 77.07 | 19.10 | Fixed | Iron | 1875 | ..... | ..... |
| Irving Park boulevard. | ..... | ..... | ..... | Fixed | Iron | ..... | ..... | ..... |
| Montrose boulevard. | ..... | ..... | ..... | Fixed | Comb'n | ..... | ..... | ..... |
| Rutledge av. .... | ..... | ..... | ..... | Fixed | Comb'n | ..... | ..... | ..... |
| Jefferson av. .... | ..... | ..... | ..... | Fixed | Wood | ..... | ..... | ..... |
| Forest Glen av. .... | ..... | ..... | ..... | Fixed | Comb'n | ..... | ..... | ..... |
| Carpenter road. .... | ..... | ..... | ..... | Fixed | Comb'n | ..... | ..... | ..... |
| Ninety-second st. | Timber | 200. | 34. | Hand | Iron | ..... | ..... | ..... |
| Ninety-fifth st. | Timber | 200. | 35. | Hand | Howe Truss | 1891 | Chicago Forge & Bolt Co. | 13,350.00 |
| Hundred and Sixth st. | ..... | ..... | ..... | Hand | Iron | ..... | ..... | ..... |
| Chittenden st. .... | ..... | ..... | ..... | Hand | Wood | ..... | ..... | ..... |
| Riverdale. .... | ..... | ..... | ..... | Hand | Wood | ..... | ..... | ..... |

BRIDGES—CONT'D.

| SUBSTRUCTURE. | | | REMARKS. |
|---|---------------------------|-------------------------------------|---|
| Material. | Contractors. | Cost. | |
| Piles | Fox & Howard | Included in superstructure cost | |
| Piles | Fox & Howard | Included in superstructure cost | Removed and slip filled in by C., S. F. & C. R. R. |
| Piles | Fox & Howard | Included in superstructure cost | |
| Piles | Old substructure used | | |
| Piles | Fox & Howard | Included in superstructure cost | |
| Piles | Chicago D. & D. Co. | \$9,964.42 | |
| Piles | Harry Fox & Co. | \$6,362.00 | |
| Piles | F. E. Canda | Included in superstructure cost | |
| Piles | N. Chapin & Co. | Included in superstructure cost | Blown down by a storm May 5, 1876. |
| Piles | New abutments G. W. James | Included in superstructure cost | |
| Piles | Fox & Howard | Included in superstructure cost | |
| Piles | Fox & Howard | Included in superstructure cost | |
| Piles | Kimball & Cobb Stone Co. | \$10,227.49 | |
| Piles | Fox & Howard | Included in superstructure cost | |
| Piles | | Included in superstructure contract | |
| Piles | | | |
| Stone | Masillon Bridge Co. | \$1,021.20 | |
| Stone | F. E. Canda | Included in superstructure | |
| Stone | Masillon Bridge Co. | Included in superstructure | |
| Wood | Masillon Bridge Co. | \$634.32 | Old wooden bridge destroyed by flood in spring, 1881. |
| Piles | | | |
| Piles | | | |
| Piles | Fox & Howard | Included in superstructure cost | The first bridge across the N. branch was constructed in 1832, near Kinzie st., for foot passengers only. |
| Masonry on piles | Fox & Howard | Included in superstructure cost | |
| Ctr. pier piles, stone abutments | Fox & Howard | Included in superstructure cost | Wooden float bridge until 1871. |
| Piles | Fox & Howard | Included in superstructure cost | Burned in fire of 1871. |
| Ctr. pier stone, pile abutments | Fox & Howard | Included in superstructure cost | |
| Piles | Fox & Howard | Included in superstructure cost | |
| Piles | Repaired, Fox & Howard | Included in superstructure cost | Substructure rebuilt in 1884 by the Chicago Dredging & Dock Co., \$10,490.00. |
| Piles | Fox & Howard | Included in superstructure cost | |
| Piles | Fox & Howard | Included in superstructure cost | |
| Piles | Fox & Howard | Included in superstructure cost | |
| Piles | Shailer & Schniglaue | Included in superstructure contract | Lift-bridge, built under Capt. Harmon's patents. |
| Piles | N. Chapin & Co. | Included in superstructure contract | |
| Piles | Old substructure used | | |
| Piles | Fox & Howard | Included in superstructure cost | 1862 Clybourn avenue, Wood, Fox & Howard, \$1,000. |
| Piles | Chicago D. & D. Co. | \$11,500.00 | Superstructure moved up from Clark street in 1889. |
| Piles | Fox & Howard | Superstructure included | |
| Piles | I. W. Lavin & Co. | Superstructure included | City of Lake View paid \$4,466.25. Total, \$7,443.75. |
| Piles | Chicago D. & D. Co. | \$18,708.10 | |
| Stone | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Ctr. pier, stone on piles, pile abutments | | | |
| Piles | Kimball & Cobb Stone Co. | \$12,258.62 | |
| | | | |
| | | | Pontoon bridge. |

SKETCH OF THE EARLY DRAINAGE AND SEWERAGE OF CHICAGO.

On February 16, 1847, a Legislative Act, supplementary to the City Charter, granted power to the Common Council to build and repair sewers by Special Assessments, upon the property benefited thereby. In the year 1849, Madison street, east and west, and State street, north and south, were decided upon, as the summit in the South Division of the city; the grades of that portion lying north of Madison street and west of State street, to slope to the north and drain into the main river. The portion east of State street to slope east and drain into the lake. The portion south of Madison street and west of State street to slope west and discharge into the South branch of the river. Nothing was done in the way of drainage, except open ditches, until the year 1850, when triangular shaped wooden box sewers were built in Clark, La Salle and Wells streets, from the main river to the alleys south of Randolph street; the cost of these sewers was \$2,871.90, which amount was wholly paid for by the property benefited.

By Act of Legislature dated June 23, 1852, a Commission, consisting of Henry Smith, Geo. W. Snow, James H. Reed, George Steele, H. L. Stewart, Isaac Cook and Charles V. Dyer, were appointed and empowered to locate, construct and maintain ditches, culverts, embankments, bridges and roads in any lands lying in townships 37, 38, 39 and 40 north, ranges 12, 13 and 14 east of the third principal meridian (Cook County), and to take the land and material necessary for these improvements, and assess the costs of such work upon the land they deemed to be benefited thereby.

An examination showed the Commissioners that nearly 100,000 acres of swamp land was contained within the limits of their Commission, much of which was considered to be nearly worthless, owing to the lack of drainage and the surface of which was from five to twelve feet above the lake level, and needed only properly constructed ditches to reclaim and make a large portion of it available for agricultural purposes and occupation. Fears were freely expressed that the Commission was granted too great a power, and that it would develop into an enormous speculation for personal gain, but such suspicions proved groundless, for in two years the Commission expended about \$100,000 in legal improvements, and large tracts of land were reclaimed from swamps and made suitable for cultivation and occupation, which had been before considered uninhabitable.

The land drained extended about four miles north, eight miles west and ten miles south from the then city limits, nearly all of which has since been annexed to the city.

By an Act of the Legislature approved February 14, 1855, a Board of Sewerage Commissioners was appointed by the City Council, consisting of one member from each of the three divisions of the city. It was their duty to consider all questions relating to the thorough and systematic drainage of the city ; to submit a plan and an estimate of the cost to the Common Council ; and to issue bonds from time to time, as they should deem expedient, not exceeding the sum of \$500,000, pledging the faith and credit of the city for the payment of the principal and interest thereof.

The first Commission consisted of Wm. B. Ogden, J. D. Webster and Sylvester Lind. E. S. Chesbrough was appointed Chief Engineer and Wm. H. Clark principal Assistant Engineer.

During the season of 1855 surveys were made and plans drawn and adopted by the Commissioners and submitted to the Common Council and their fellow citizens for a general approval, December 31, 1855.

The plans submitted were bounded on the north by Division street, on the west by (Reuben street) Ashland avenue, on the south by (North street) Sixteenth street, and on the east by Lake Michigan. The plan as adopted and since carried out provided for main sewers in the North Division, in Rush, Clark and Franklin streets discharging into the main river, and Chicago avenue emptying into the North Branch. The West Division mains were located on Fulton, Randolph, Madison, Adams and Van Buren streets, emptying into the South Branch.

The South Division east of State street was drained by a main sewer in Michigan avenue, from the river to Sixteenth street, the summit being at Van Buren street ; that part south of Van Buren street discharging into the lake at Twelfth street, the part north to empty into the main river ; the portion lying south of Washington street west of State street to be discharged into the South Branch at various streets ; the part west of State street and north of Washington street to be drained by two-foot sewers in each north and south street emptying into the main river.

From the outset Mr. Chesbrough insisted upon constructing sewers to discharge by gravity; this necessitated raising all streets from one to three feet above the natural surface of the ground in order to have sufficient cover over the top of the sewers to protect them from frosts and heavy traffic. The first sewerage bonds to the amount of \$100,000 were sold March 19, 1856. The first contracts for constructing public sewers was awarded and work commenced in 1856.

State street, from Randolph street to the river, was built by Ives & Lonergan, contractors.

North Clark street, from North Water street to Erie street, was built by S. S. Wiltsee & Company.

West Randolph street, from the river to Desplaines street, was built by S. S. Wiltsee & Company. These were the first sewers built.

| | | | |
|---------------------------------------|---|---|--------------|
| There was built during the year 1856, | . | . | 6.02 miles. |
| There was built during the year 1857, | . | . | 4.86 miles. |
| There was built during the year 1858, | . | . | 19.29 miles. |
| There was built during the year 1859, | . | . | 10.45 miles. |
| There was built during the year 1860, | . | . | 13.09 miles. |

Total built by Sewerage Commissioners, 53.71 miles.

On December 19, 1856, Mr. Chesbrough received instructions from the Board of Sewerage Commissioners to proceed to Great Britain and the Continent of Europe for the purpose of examining the various methods of sewerage adopted there, and to collect such information as in his judgment would aid in the further prosecution and perfection of the sewerage of the city of Chicago.

Mr. Chesbrough visited Liverpool, Manchester, London, Glasgow, Amsterdam, Hamburg, Berlin, Paris and other cities, and made a lengthy report to the Board of Commissioners March 25, 1858, recommending that the system planned by himself and adopted by the Board in 1855 be carried forward.

By an Act of Legislation, approved March 20, 1861, the Board of Sewerage Commissioners was abolished and a Board of Public Works was created. At an election held the third Tuesday in April, 1861, Benjamin Carpenter, Frederick Letz and John G. Gindele were elected Commissioners.

The Board was organized and assumed full control of all public works, including sewerage, on May 6, 1861. The Board of Public Works continued in power, with several changes in its members, until September 19, 1876. Total number of miles of sewers in place December 31, 1876, 265.80 miles. On September 18, 1876, an ordinance was passed abolishing the Board of Public Works, and on September 18, 1876, the Department of Public Works was organized, with the Hon. Monroe Heath, Mayor and Acting Commissioner. No Commissioner of Public Works was appointed until after the Hon. Carter H. Harrison was inaugurated Mayor, on May 19, 1879. Charles S. Waller was appointed and qualified Commissioner.

EARLY HISTORY OF THE FIRE DEPARTMENT.

The early history of Chicago's Fire Department is necessarily a recital of the memories which cluster around the old volunteer companies in the days when her most substantial business and professional men were the "boys" who "run wid de machine."

Old settlers still alive will remember with what pride the members of the different companies were viewed by their respective admirers; many were the friendly rivalries, and sometimes even bitter contests, engaged in by the companies in their endeavors to reach a fire first, and which should throw the furthest stream. In their efforts to outdo each other the "boys" strove with awful determination to obtain commanding and daring positions, seemingly forgetting at times that their first duty was to save the burning property from the ravages of the fire; but whether at fire or festival the spirit of rivalry was never at rest.

The first grand parade of the department was in 1846, during the meeting of the River and Harbor Convention in that year. On this occasion there was a memorable contest for supremacy and the old "Red Jacket" company triumphed over all rivals by throwing a stream of water over the flag staff in the center of the public square. On those public occasions when the "boys" turned out in parade, they would put on their best clothes, burnish all the metal of their engines to a blinding brightness, deck them with flowers and gay streamers, and look their sweetest and best generally.

In January, 1831, an Act was passed by the Legislature authorizing any town or village to organize fire companies, not exceeding thirty members, and exempting them from jury duty or military service, except in time of war. Chicago was not then a town, and as there were not more than half a dozen frame buildings in the village, there was no company organized.

Chicago became a town in August, 1833, and in the following September the first fire ordinance was passed prohibiting the passing of any stove pipe through the roof, partition or side of any building, unless guarded by tin or sheet iron, six inches away from any wood work, and for the enforcement of its provisions, fire wardens were appointed who were also empowered to direct the movements of citizens who responded to the alarm of fire.

The first fire that occurred in the town of Chicago was on October 12, 1834, completely destroying a frame building on the corner of Lake and La Salle streets. Two days after this fire, the Board of Trustees held a

meeting at the Tremont House and adopted a new fire ordinance empowering wardens to summon bystanders to assist in suppressing fires. It also made the warden of the ward in which the fire might occur "Chief" for the time being, and obliged all the wardens to wear badges of their office.

The October fire appears to have stirred up the town authorities to unusual activity, for on September 3d, the Board of Trustees held another meeting at the "Exchange" Hotel, corner of Lake and Franklin streets, and adopted another and more stringent precautionary ordinance against fire.

It was not, however, until September 19, 1835, that the first practical step was taken toward the proper organization of a Fire Department showing signs of discipline and a controlling power. It was on this date that William B. Ogden, as agent of the Corporation, was authorized by the Board of Trustees to purchase two new fire engines and 1,000 feet of hose, together with a small assortment of other tools, such as hooks, axes, ladders, hand-saws, etc.

These feeble steps were preliminary to the passage of the ordinance of November 4, 1835, by which the first regular Fire Department of Chicago was organized. By its provisions the department was made to consist of a Chief Engineer, two assistants, four fire wardens, in addition to the Town Trustees, who were *ex officio* fire wardens. The Board of Trustees appointed the members of the department.

The first bucket company was formed under the provisions of this ordinance, and was not disbanded until 1840. Each householder was compelled under penalty to provide one strong leathern bucket with his name painted thereon, for every stove or fire-place in his house.

The records of the department up to 1837, the year of the city's incorporation, are exceedingly unsatisfactory, and even the traditional legends available contain no information of any importance. They are merely tales of the exploits of the various volunteer companies with their rivalries, their quarrels and their jealousies, with an occasional account of some parade or firemen's "sociable."

Under the provisions of the Charter, passed March 4, 1837, the Council was vested with the power to organize fire companies. The Chief Engineer and two assistants were chosen annually thereafter. In December Alexander Lloyd was chosen Chief Engineer. He continued in office until 1839, when Alvin Calhoun was chosen to fill the position, with Isaac Cook as first assistant. The next year Luther Nichols was elected Chief, but there was no further increase of the organization until September, 1841, when the Chicago Bag and Fire Guard Company, afterwards better known as the "Forty Thieves," was formed. With canvas bag, cord and wrench they fought fires, rescued and guarded property. This is the record of this early organization, from which it would seem that the nick-name must have been a misnomer.

A. S. Sherman acted as Chief from 1841 to 1844. On September 7th of the former year the "Neptune" Bucket Company was organized. Its original members were twenty-five in number, with headquarters on the river at the foot of La Salle street. "Neptune" was provided with a carriage and 160 buckets, which were effective at many a fire. F. T. Sherman was the first foreman of this company, which was afterwards, in 1846, admitted into the department under the new name of "Red-Jackets." They wore a very neat uniform consisting of a red jacket, with white belt and cap. It was this uniform, most likely, which prompted their adoption of the new name for the company.

Engine Company No. 3—"Osceola"—sometimes known as the "Kid Glove Company," was organized on November 24, 1844.

From 1844 to 1847 Stephen F. Gale acted as Chief. During this period, in 1845, the Philadelphia Hose Company No. 1 was organized, with headquarters on the North side, near Clark street bridge. In 1855 the first steam fire engine was brought from Cincinnati, and a trial was subsequently arranged between the steamer and the hand engines of the department, resulting in the defeat of the interloper by No. 2, No. 8 and No. 10. The steamer did not give satisfaction, and was subsequently sold to the city of St. Louis.

Because of the numerous incendiary fires which occurred in October, 1847, especially in the vicinity of the lumber and ship yards, a special committee of the Council was directed to take into consideration the expediency of passing an ordinance to prevent the establishment of planing mills, lumber yards, and other dangerous mercantile businesses in thickly settled portions of the city. Two years thereafter (October, 1849,) an ordinance was passed to prevent the erection of wooden buildings within the following limits: South of the center of the Chicago river and east of the center of the South Branch thereof, and north of Randolph street and west of Wabash avenue. Buildings used for warehouse purposes upon the so-called "wharfing privileges" were not subject to the provisions of this ordinance.

In October, 1847, the Firemen's Benevolent Association was organized, with Stephen F. Gale as President. Mr. Gale's activity and zeal in the interest of the department were highly appreciated by the members, and he would undoubtedly have been elected Chief in 1848, but on account of ill health he was obliged to decline the honor, and Charles E. Peck was elected to that office. During his administration in March, 1848, the "Hope" Hose Company No. 2 was formed, and in August, 1849, while Ashley Gilbert was Chief, "Protection" Engine No. 6 was organized. William Gilbert was succeeded the next year by Cyrus P. Bradley, who remained in office for two terms.

At a meeting of the Council held August 1, 1850, the fire limits of the city were extended "so as to include the district east of the South branch of

the Chicago river and west of State street and North of the alley running between Randolph and Washington streets."

From 1852 until 1854 (two terms) U. P. Harris was Chief, being succeeded by J. M. Donnelly, who served but one term — in 1854. At this time alarms of fire were struck by the bell of the First Baptist Church. In February, 1855, when the large bell was hung in the dome of the new Court House, the honor of sounding alarms of fire was transferred to that structure, where a watchman was stationed continually to fling out his flags by day or his lanterns by night, thus directing the firemen to the locality where he had discovered the flames.

Silas McBride was the next Chief of the department. During his term of office, lasting during three years, many new organizations were formed, materially augmenting the strength and the efficiency of the department.

On October 19, 1857, occurred the most destructive fire that Chicago had experienced up to this time. It entailed upon the city not only a great loss of property but a distressing loss of life. The fire originated in a brick store at No. 109 South Water street. Owing to the scarcity of the water supply the flames made rapid progress, and it was not long before some of the finest and most costly edifices in the city were a heap of smouldering ruins.

Nearly half a million dollars worth of property was destroyed and twenty-three lives were lost. Most of these lives were lost after the conflagration, by the caving in of the roofs and falling of the walls of a dry goods store on Lake street, burying some twenty men beneath the ruins, who had been employed in rescuing goods. Great excitement prevailed, and every effort was put forth to rescue the bodies. This work was extremely hazardous owing to the tottering condition of the walls on either side.

The testimony adduced at the coroner's inquest proved the utter helplessness of the fire department, as then organized, to cope with a wide-spread conflagration. The immense amount of property lost by the unorganized exertions of those who were attempting to save goods, as well as the impossibility of protecting valuables from thieves, induced the business men and insurance companies to form at once a "Fire Brigade" whose duties should be the taking of valuable goods from burning buildings, selecting the most valuable for removal first, and preventing as far as possible the damaging of goods by water and protecting them from thieves.

An organization was effected on November 19th, and assumed the name of "The Citizens Fire Brigade of Chicago, Illinois."

This was the beginning of our now celebrated and efficient "Fire Insurance Patrol."

In 1858, after a spirited contest for the position of Chief of the department between D. J. Swenie and John Egan, the Swenie ticket was elected. After the election of Mr. Swenie, his opponents were by no means satisfied,

and the feeling ran so high that for a time it was thought it would culminate in a riot. The members of several fire companies met on Clark street and forming into line marched through the principal streets into the Court House square. A large crowd had collected there, and the people were becoming more and more excited. Fearing a disturbance, the Mayor sent an extra police force to disperse the crowd. Several firemen were arrested who were afterwards released by order of the Mayor. The organizations which took part in the procession were disbanded by the Council March 22, 1858, which action may be called the beginning of the death of the old volunteer department.

On August 2, 1858, the Council passed the ordinance organizing the paid department, and laid the foundation for the future development of the Fire Department as it exists to-day, in a state of efficiency second to no similar institution in the world.

POLICE DEPARTMENT.

There is little to be said or written concerning the early police affairs of Chicago. Indeed, the officers to whom was entrusted the enforcement of the then few criminal laws, were not known as policemen. Though doing what might be termed police service, they were simply constables; their real functions being to discharge the executive duties of a justice court. The town of Chicago was incorporated August 5, 1833, and the first town election was held August 10th; but no mention is made of the election of a constable until at the third election of town officers, which occurred August 5, 1835. At that term, O. Morrison was chosen "Police Constable," and in addition to the requirements of this office, was also delegated to act as Town Collector. Mr. Morrison was undoubtedly the first constable the town of Chicago ever had—the records previous to this time disclosing that "half the fine went to the informer," as a sort of reward for his zeal in bringing offenders against the law to punishment. As early as May 9, 1834, a notice was posted about the streets, which imposed a fine of five dollars to anyone riding or driving across a bridge faster than a walk. Here, too, as the town had no officers to see to the enforcement of this law, half the fine was given to the informer. September 1, 1834, the first Sunday law was passed, which prohibited any "tippling shop" or "grocery" from keeping open on Sunday. The penalty was a fine of five dollars and costs for each offense, one-half the fine to be given the complainant. June 6, 1836, the fourth town election was held, and O. Morrison was re-elected constable; but by this time, it appears, the duties of the office had increased to such an extent that he was not asked to act as collector; that work being assigned to the assessor.

It should also be noted that in August, 1835, the new Board of Town Trustees had passed a code of municipal laws, the chief features of which were: prohibition of gaming houses; definition of what were street nuisances; proscription of the sale of liquor on Sundays, and the firing of guns and pistols in the streets.

In 1837 the city charter was granted, and the town of Chicago, as a corporation, ceased to exist. This charter, among other provisions, created the Municipal Court, which had concurrent jurisdiction with the County Court over all matters occurring within the city limits. There was also created at the same time, and as an officer of this court, the office of High Constable, who, with his deputies, chosen from among the city constables, constituted the police force. The charter also gave the Council the power

to appoint "as many police constables as they may think proper," not exceeding one from each of the six wards which then comprised the city. At the first city election, John Shrigley was elected High Constable. The Council, however, did not think one from each ward necessary, and, until 1840 (certainly not before that time), two constables, Lowe and Huntoon, did the police duty for Chicago. It appears that the press of those days did not regard two men as being a force by any means large enough to properly look after the city's police interests, and frequently did the editor of the *Daily American* urge upon the Council the necessity of increasing the number.

Under date of May 20, 1839, the *American* says: "The grand jury, after a session of four days, has adjourned after finding six indictments—four for larceny and two for perjury." Here the editor takes occasion to refer to the condition of the morals of the city. He says: "When we consider the number of indictments found at previous times, the public must be satisfied that crime is fast diminishing."

Previous to this time a murder had been committed in the county, but as it did not occur in the city its details are not given in this chapter.

The police force of Chicago did not, until the year 1855, reach anything like systematic organization. Prior to that time the force was composed of police constables, chosen one from each ward, which, until 1842, was without a head officer, unless the High Constable, who had the power to select his deputies from the town constables, could be regarded as the chief of the police constabulary of the city. The first City Marshal was Orson Smith, elected in 1842, who served two terms, being succeeded in 1844 by Philip Dean. The latter served until 1847, when by Act of the Legislature the number of wards in the city was increased from six to nine. At the following election, in the Spring of 1848, Ambrose Burnham was chosen Marshal, and together with the police constables, nine in number, comprised the force. Burnham remained in office from 1848 until the Spring of 1852, when James L. Howe was elected as his successor, and held the position three years. In 1854 Darius Knight was elected, and served two years, until 1856, when he was succeeded by James M. Donnelly. In April and June, 1855, ordinances were passed creating the Police Department, whereupon Cyrus P. Bradley was appointed Captain or Chief of Police. The roster of officers for 1856 is as follows: Chief, Cyrus P. Bradley; Captain, J. W. Connett; West Division—First Lieutenant, M. Finion; Second Lieutenant, F. Gund; North Division—First Lieutenant, John Gorman; Second Lieutenant, Charles Denehey; South Division—First Lieutenant, Charles Chilson; Second Lieutenant, H. Schockley; Clerk of the Police Court, Benjamin R. Knapp.

Three precincts were designated, as will be shown. These divisions contained each a station-house and a force of men. The first precinct

station was located in the old market on State street, between Lake and Randolph. In 1856 there were twenty-three patrolmen appointed, three more being added in 1857. They were officered by Luther Nichols, First Lieutenant, and E. S. Hanson, Second Lieutenant. The latter resigned, and was succeeded by D. E. Ambrose. In 1858 the station was moved to the corner of Franklin and Adams streets.

The second precinct station in 1855 was located in the old West Market Hall. The force there consisted of fourteen patrolmen, with Michael Grants, First Lieutenant; William Tenbroeck, Second Lieutenant; and Charles Warner, Sergeant. The next year the force was increased to twenty patrolmen, officered by John Gorman, First Lieutenant; Charles Denehy, Second Lieutenant; and Francis Humelshine, Sergeant. In 1857, under the administration of Hon. John Wentworth, John M. Kennedy was appointed First Lieutenant at this station; Charles M. Taylor, Second Lieutenant; and D. E. Ambrose, Sergeant.

The third precinct was established June 16, 1855, with S. P. Putnam, First Lieutenant; John Noyes, Second Lieutenant; and George Leander, Sergeant. The force was composed of twenty-one patrolmen. In 1856 Michael Finnigan was First Lieutenant and Fred. Gund, Second Lieutenant. The next year, under Mayor Wentworth, Jacob Rehm was for a time First Lieutenant, and was succeeded by H. A. Kauffman; John Noyes was Second Lieutenant, and Philip Petrie, Sergeant. That year the force was increased to thirty-three men. The total strength of the police force of the city at the close of 1857, including the officers, numbered something over one hundred men.

The chief officers from 1835 to 1857 were: Constable, O. Morrison; elected August 5, 1835; served two years; High Constable, John Shrigley, May 3, 1837, two years; High Constable, S. J. Lowe, May, 1839, three years; Marshal, Orson Smith, May, 1842, two years; Police Constable William Wiesencraft, May, 1842, three years; and Marshals Philip Dean, 1845; Ambrose Burnham, 1847; James L. Howe, 1852; Darius Knight, 1854; M. Donnelly, 1856.

The Bridewell—so-called “from a hospital built in 1853, near St. Bride’s, or Bridget’s, Well, in London, subsequently turned into a work-house,” and now commonly applied to city houses of correction—was opened in December, 1851. Prior to that date offenders against the law were confined in a jail on the public square. In 1850–51 the Legislature authorized the city to found the Bridewell, and accordingly a building was prepared for such use on block 87 of the school section, corner of Polk and Wells streets. The prison was built of three-inch oak planks, set upright, and roofed with the same material. It was 100 feet in length by twenty-four feet in width, one-story high. Cells were furnished for about two hundred persons. David Walsh was the first keeper, and held the position until

1857. Mr. Walsh states that an average of one hundred prisoners were in his charge during that time. At first the culprits were given employment in piling and handling the large quantity of lumber used by the city in paving the streets. Subsequently, when planking was abolished as a roadway, a stone-yard was opened near the jail, wherein the prisoners were forced to labor.

From 1858 until the Spring of 1861 the police of the city continued to act under the direction of the Mayor or the City Marshal. By ordinance of May 17, 1851, the City Marshal was constituted the acting Chief of Police; but the Mayor, by virtue of his office, was the head of the force, made the appointments, and could direct the action of the police. Under Mayor Wentworth the police wore leather badges, but had no other distinctive mark or uniform. In 1858, under Mayor Haines, a uniform for the police was adopted. It consisted of a short blue frock coat, which got the nick-name of the "copper," stock coat, and a blue navy cap with gold band. A plain brass star took the place of the leather badge. During 1858 to 1861 each division of the city constituted a police district, with a station at the different market halls. The force consisted of a captain, six lieutenants, three sergeants and between fifty and sixty patrolmen.

City Marshals: J. M. Donnelly, 1858; Jacob Rehm, 1859; Iver Lawson, 1860. On the fifteenth of February, 1861, the Legislature passed an Act to establish a Board of Police Commissioners in the city of Chicago. The Board was to consist of three Commissioners, one to be chosen from each division of the city. The Governor was authorized to appoint the members of the first Board, who were to hold their offices for two, four, and six years, respectively, from and after the next general election. The respective terms of the first Commissioners were to be decided by their drawing lots. It was further provided, that at the general municipal election in 1863, and biennially thereafter, there should be elected a Commissioner to succeed the one whose term then expired.

Governor Yates, on the twenty-second of February, 1861, appointed Frederick Tuttle, from the South Division, William Wayman, from the West Division, and A. C. Coventry, from the North Division, as the Board of Police.

About one o'clock in the morning of the twenty-sixth of March, 1861, Mayor Wentworth assembled the entire police force before him at his office in the City Hall and discharged them, leaving only a custodian at each station, so that the Police Commissioners should have a fair chance to appoint the force. Jacob Rehm was at once appointed Deputy Superintendent, and before the close of the day, several officers and twenty-five patrolmen were appointed and sworn in. The city had been without a police force for about twelve hours. In a few weeks the force was thoroughly organized under C. P. Bradley as Superintendent, and Jacob Rehm, Deputy.

The new uniform for the members of the force consisted of a blue frock coat and gray pantaloons with blue stripe. The badge was a silver shield.

In February, 1863, the Legislature revised the city charter; the term of office was reduced to three years, one Commissioner to be elected every year, and the Mayor was made a member of the Board *ex officio*.

In 1863 Mr. Tuttle's term expired and J. L. Newhouse was elected as his successor. Jacob Rehm was appointed Superintendent, and the captains were John Nelson, William Turtle and Frederick Gund. The city was divided into three police precincts, each division of the city constituting one, with stations and sub-stations.

During 1864, Thomas B. Brown was elected member of the Board from the West Division, and William Turtle was appointed Superintendent. By the Act of February 16, 1865, the term of the Police Commissioners was extended to six years, one to be elected every two years, and it was provided that the police force should consist of a General Superintendent, one Deputy Superintendent, three captains, sergeants of police not exceeding twelve, and patrolmen not exceeding two hundred.

The Board in 1865 was composed of A. C. Coventry, President, John Wentworth and Thomas B. Brown, with William Turtle as Superintendent. The patrolmen were increased to one hundred and twenty-five.

In 1866 the members of the Board were Thomas B. Brown, A. D. Titsworth and Frederick Gund. Jacob Rehm was appointed Superintendent, and the number of patrolmen was increased to one hundred and twenty-five.

In 1867 the Legislature amended the police law. The Commissioners were required to devote their entire time, if requisite, to the duties of their office, and were each to receive an annual salary of not less than \$2,500: the amount was to be fixed by the Common Council. The other salaries were as follows: The Superintendent not less than \$3,000, Deputy Superintendent not less than \$2,500, each captain not less than \$1,500, each sergeant not less than \$1,200, each patrolman not less than \$800 nor more than \$1,000.

By a later Act of the Legislature, in March, 1869, the salary of each Commissioner was fixed at \$3,000; each captain's at \$2,000, and each sergeant's at \$1,500.

In 1867 the patrolmen were increased to one hundred and seventy-three. In 1868 Wells Sherman was appointed Deputy Superintendent in the place of John Nelson. In 1869 W. W. Kennedy was appointed Superintendent. In 1870 two hundred and seventy-four patrolmen were employed. The Commissioners were Thomas B. Brown, Mark Sheridan and Frederick Gund.

The Board of Police Commissioners instituted the first organized force of detectives in 1861. Prior to that time the City Marshal had occasionally detailed one or more of the regular force for special detective service. The

following officers were among the first who were regularly engaged in detective work : Asa Williams, Isaac Williams, Henry A. Kauffman, Joseph H. Dixon, William Douglas and Horace M. Elliott.

The losses caused by the great fire of 1871 in buildings, furniture supplies, muskets, etc., amounted to \$75,000, exclusive of the effects in the control of the custodian, estimated at \$20,000 loss.

Over 150 members of the department were made homeless by the fire, for whose assistance a relief fund of \$10,044 was raised, principally by the police department of other cities.

Property to the value of over \$100,000, lost or stolen during the fire, was restored to its owners. At the time of the great fire the police force comprised 425 men ; March 1, 1872, 455 ; 1873, 458 ; 1874, 552 ; 1875, 597 ; 1876, 517 ; 1877, 516 ; 1878, 442 ; 1879, 453 ; 1880, 473 ; 1881, 506 ; 1882, 557 ; 1883, 637 ; 1884, 924 ; 1885, 926 ; 1886, 1,036 ; 1887, 1,145 ; 1888, 1,255 ; 1889, 1,624 ; 1890, 1,900. In 1871 the city was divided into three precincts with various sub-stations. In 1880 the police telephone and signal system, with the use of patrol wagons and boxes, was introduced. The establishment of telephone stations at intervals along all available patrol beats augmented the efficiency of the force. In the following year 2,114 box-keys had been given to citizens ; the horses had been trained to cover a mile of territory within six minutes, and eight operating stations were maintained. In 1883 there were 375 boxes placed on the most prominent street corners throughout the city, being an average of twenty-five boxes to each wagon. At the close of 1884 the number of boxes was 434, and the service required the attention of eighty-four men.

In 1871 the detective force, under the command of Wells Sherman, consisted of Messrs. Ellis, Heinzman, Simmons, Elliott, Simonds, Tyrrell, Lackey, Bridges. In 1873 Samuel A. Ellis became Chief of Detectives, and secured an appropriation of \$10,000 for a secret service fund. The following is the number of officers detailed as detectives since 1871: 1872, 6 ; 1873, 10 ; 1874, 6 ; 1875, 10 ; 1876, 10 ; 1877, 10 ; 1878, 8 ; 1879, 10 ; 1880, 11 ; 1881, 19 ; 1882, 20 ; 1883, 22 ; 1884, 30 ; 1885, 30 ; 1886, 30 ; 1887, 30 ; 1888, 40 ; 1889, 40 ; 1890, 50.

SURFACE AND ELEVATED RAILWAYS.

Frequent and rapid communication between the centers of trade and the resident districts of cities is indispensable to their continued growth. That Chicago has kept up and is keeping up with other cities in this regard is apparent to all.

From the date of the first ordinance for a street railway on State street, from Randolph street to the southern city limits, on March 4, 1856, to the present time, there has been a succession of extensions, until there are now 395.30 miles of street railways — horse, cable, electric and elevated.

Under an ordinance passed by the City Council August 16, 1858, the Chicago City Railway Company laid track on State street from Lake street to Madison street, and early in the Spring of 1859 the track was extended to Twelfth street, and from this beginning its lines have been from time to time extended, until they now make a total length of 152.95 miles.

In 1881, realizing the impossibility of serving the people by means of horse cars, eight miles of cable track were laid on State street from Madison to Thirty-ninth streets, which was open to travel June 28, 1882. In the following year track was laid on Wabash and Cottage Grove avenues, making a total of twenty and one-quarter miles, operated from one power house, located at Twenty-first and State streets, with one thousand horse power engines.

The growth of business has been so great that the company has been compelled to increase its machinery plant to ten thousand horse power, driving 38.83 miles of cable.

On the horse car lines 2,508 horses are now in service, while the cable plants are doing the work of 7,500 horses more, with 1,250 cars.

June 1, 1868, the Board of Trustees of the Village of Hyde Park, passed an ordinance granting the right to operate, over certain streets of the village, to the Chicago and Calumet Horse and Dummy Railroad Company. This was practically the Chicago City Railway Company, and track was soon laid on Fifty-fifth street and Cottage Grove avenue as far north as Thirty-ninth street.

The system of transfers established by this company has been of much importance, and has added greatly to the convenience and comfort of passengers. The longest ride over the lines is about thirteen miles, for a single fare of five cents.

THE NORTH CHICAGO STREET RAILROAD COMPANY.

The first franchise granted for a street railway on the North Side was on May 23, 1859, and construction was soon begun on Wells street from North Water street to Chicago avenue. This street was at that time planked, and a T rail was laid thereon. Soon after a track was laid on Clark street as far north as Division. In 1864 a steam dummy was started on Evanston avenue, running from Diversy street to Graceland Cemetery, a distance of about three miles. This was discontinued in 1881 and horses substituted.

When the present management took control of the North Side system, in March, 1886, there were thirty-five miles of track in operation, and 1,850 horses. Now there are 80.3 miles of track and 1,420 horses, with three thousand two hundred horse power supplied by engines driving 56,500 feet of cable. In 1890 a storage electric motor was given a trial, which bids fair to be a great success. This machine was not fully completed, and was only tried to demonstrate that its design was practical.

In 1862 the West Side Railway Company had about five miles of track, some twenty cars and 120 horses and mules. In 1887 there were 4,327 horses in use. In the Spring of 1887 they began to lay cable track on West Madison street and Milwaukee avenue, starting the same in August, 1890, displacing 600 horses on Madison street and 350 horses on Milwaukee avenue. These horses were immediately transferred to the shorter lines, increasing the number of cars and giving the people improved service. The power used at present is: two thousand horse power at the Rockwell street station; two thousand horse power at the Cleaver street station, and five hundred horse power at the Jefferson street power house.

CALUMET ELECTRIC STREET RAILWAY COMPANY.

The first electric street railway within the limits of Chicago started October 2, 1890, and is now in operation, running from the South Chicago Rolling Mills by way of Eighty-ninth street, Mackinaw avenue, Harbor avenue, Ninety-third street and Stony Island avenue to Ninety-fifth street. The construction of two additional miles of line is now under way on Ninety-third street from Stony Island avenue to Cottage Grove avenue and north to Eighty-seventh street. These lines are but the beginning of an extensive system at South Chicago to connect the manufacturing and residence suburbs, which now lack proper means of communication. The Rae electric system is used; the power house being located alongside the Chicago & Western Indiana Railroad. The generating plant consists of one 65,000 Watt rail generator, driven directly by a one hundred and twenty-five horse-power engine.

The South Chicago City Railway Company propose to change their plant from horse to electric power this coming Summer.

On July 10, 1885, their road was completed on One hundred and sixth street from Torrence avenue to Ewing avenue, thence to Ninety-second street, a distance of three miles. In 1886 an extension was completed on Ninety-second street from Harbor avenue to Commercial avenue, and on Commercial avenue to One hundred and fourth street, on One hundred and fourth street to Torrence avenue and south to One hundred and sixth street, about three miles. In 1890 two miles of old track were taken up and relaid entirely new.

The Cicero and Proviso Electric Street Railway have just completed about five miles of track on West Madison street, West Forty-eighth street and West Lake street. The Sprague overhead system is used.

THE CHICAGO & SOUTH SIDE RAPID TRANSIT COMPANY.

Surface street railways for a time meet the requirements of cities, but as the population of cities increase and the limits of the city are extended these facilities are gradually overtaxed, and the time consumed in transit becomes a practical bar to their further extensions. These difficulties are now being seriously felt in Chicago.

Profiting by the experience in New York, it was decided by the projectors of this road that instead of constructing the road through the public streets, thus subjecting the company to suits for damages from all abutting owners, they would endeavor to acquire a right of way through private property by condemnation or by friendly purchase, thus fixing and limiting at the outside and for all time to come the maximum cost. Having decided upon this course, the ground was carefully examined with a view of locating where the line would be easily accessible while doing the least damage to property, and the location was selected between Wabash avenue and State street. A north and south alley runs nearly all the way between these streets, and a strip of land parallel with and adjoining the alley can be acquired at a moderate cost. The Company began to secure rights of way soon after authorization by the City Council, but it was not until December, 1889, that these preliminaries were sufficiently advanced to permit the erection of the iron superstructure, and since that time some two miles have been substantially completed and the right of way secured for the third mile. The Company hopes to open the first section of its road to the public during the coming Summer.

LAKE STREET ELEVATED RAILWAY COMPANY.

This Company secured its right of way on Lake street, from Market street west, and is now negotiating for a loop line east of Market street. The structure consists of latticed iron columns set at the curb line of the street, connected by girders six feet deep. These cross girders are connected by a girder under each rail. At present two tracks are laid, but two additional tracks can be added at any time without any change of the present structure. Construction of foundations began September 21, 1889, and has been pushed since then as fast as the obstacles, which always beset new undertakings, could be overcome.

The motive power will be twenty-eight ton engines, provided with drip-pans, anti-friction journals being used as far as practical.

RAILROADS.

Any account of the early history of Chicago would not be complete without at least a brief reference to her struggles for railroad communication with other points in the State, and also with the Eastern States and the seaboard.

The first railroad chartered out of Chicago was known as the "Galena & Chicago Union Railroad." This charter was granted in 1836, but the ambition of Chicago was evidently ahead of her means, and the Galena & Chicago Union had to wait ten years before it was fairly placed on a substantial basis.

A similar fate met the first incorporators of what is now known as the Illinois Central. This road received its charter the same year as the Galena & Chicago Union, but nothing was accomplished in the way of railroad building, and the project collapsed and remained in that condition until revived by its immense land grant in 1850.

The revival of the Galena & Chicago Union Road, and the canvassing for subscriptions along the proposed line from Galena to Chicago, was carried out by William B. Ogden, at that time Mayor of Chicago, and J. Y. Scammon. They traveled the entire distance from Galena to Chicago, holding meetings and obtaining subscriptions at all considerable places on the route. Other public-spirited citizens aided in securing subscriptions, until their efforts finally resulted in the sale of \$15,000 worth of stock and a loan of \$7,000. This money completed the road across the marsh to the foot of Cottage Hill, a little over ten miles from Chicago, and the purchase of two locomotives from the Baldwin works, Philadelphia.

An ordinance was at this time introduced by Mr. Ogden into the Common Council proposing to grant the right of way into the city from the west along the line of Kinzie street, with all the necessary privileges for constructing tracks, bridges and depots. This measure was voted down and entrance to the city was refused, with the exception of a permit which was granted to build a temporary track east to the river, so that one of the two engines could be brought to the head of the road, for which a contract had been let for the building of the first thirty-two miles in March, 1848. In September of that year two more locomotives were purchased and fitted up with new gearing and boilers, and the first one was placed on the section between Chicago and the Desplaines river in November. It served its purpose well, and is in existence to-day.

When the Desplaines river division was in working order the rolling stock consisted of six old freight cars and the locomotive above referred to. On the twentieth day of November, 1848, a number of the stockholders and the editors of the newspapers of that day made a flying excursion over the entire length of Chicago's railroad system, which then extended west just ten miles to the Desplaines river. There were about one hundred persons in the party which left the foot of North Dearborn street, about four o'clock in the afternoon, amid the cheers of a large crowd which had assembled there to witness the novel spectacle. Before starting on the return trip a load of grain was transferred from a farmer's wagon to one of the cars, and this was the first load of grain ever brought by rail to Chicago. In less than a week over thirty loads were at the Desplaines river waiting for cars to transport them to the city. Then there began a steady and surprising increase in the business of the road, resulting in its final completion to its terminus in the thriving village of Galena, which at that time rivaled Chicago in commercial importance. It may be stated here that the damages assessed for the right of way through to Galena were made merely nominal by the committee appointed for that purpose. The munificent sum of *six cents* was offered to each land-owner along the route, and was accepted by them without dissent. Quit-claim deeds were thereupon made to the company, and the road was secured.

The rewards which waited on the projectors were fully earned. A railroad conceived, equipped and successfully managed during those early years without aid from the State or General Government, pointed out its projectors to be men at once self-reliant, energetic, enterprising and intelligent. Michigan, Illinois, and in fact all the States and private companies that entered on such enterprises were driven to the verge of ruin, the Galena and Chicago Union Company alone making their enterprise successful from the moment the work began. In 1864 the road was consolidated with that immense railroad system known as the Chicago & North-Western Railway.

In 1850 the Illinois Central received from Congress its immense land grant of 2,595,000 acres in the heart of the State, and an additional strip of 200 feet in width from La Salle to Cairo, for the uses of road-bed, side tracks and stations of the Central Railroad. This grant was made on conditions that it be controlled by Illinois, and that upon the completion of the road it should be free to the General Government. This was the precedent to railroad grants. The successive steps by which the Illinois Central obtained a foothold in Chicago commenced in 1850, by the company gaining possession of the unoccupied portion of the Fort Dearborn reservation, and afterwards, in 1852, by obtaining from the Legislature the right to build a branch from the terminus at Twelfth street to the South pier of the inner harbor, and in the same year, from the Common Council, by ordinance, the

right to lay tracks parallel with the lake from the city limits to the proposed depot site between Randolph street and the river. This actually handed over to the company the right to use a strip of shore 300 feet wide east of a line drawn parallel with Michigan avenue, and 400 feet distant from the west line of that thoroughfare.

In 1852 work was commenced on the lake shore protection or break-water, and finished two years afterwards. This work was done under the superintendency of Chief Engineer Col. R. B. Mason, afterwards Mayor of the city.

In February, 1856, passenger trains on the Illinois Central commenced to run into the new depot. After that the company commenced to improve and possess submerged and other lands lying east of the 200 feet granted in the original ordinance, and have continued to do so ever since, which has caused the seemingly interminable litigation between the city of Chicago and the Illinois Central Railroad Company.

The Chicago & North-Western road was originated in 1854, and was then known as the Chicago, St. Paul & Fond du Lac Railroad, and is now in reality a consolidation of a number of smaller companies throughout the Northwest. The policy of absorption was carried on unremittingly, until at length the road became known throughout the world as the Chicago & North-Western Railway.

The Chicago, Burlington & Quincy Railroad, which now brings the commerce of Illinois, Iowa, Nebraska, Kansas and Colorado into the heart of this city, may be said to have formed a nucleus in 1849. From that time the history of this immense system is very similar to that of the Chicago & North-Western road. It was through a series of consolidations of smaller roads that the system was built. During the session of the Legislature of 1855 a law was passed consolidating the Aurora & Chicago, the Central Military Tract, the western end of the Peoria & Oquawka and the Northern Cross Railroad Companies into a single corporation, under the name of the Chicago, Burlington & Quincy Railroad Company. This company's tracks into the city via Sixteenth street were laid in 1863. Previous to that time all Chicago & Burlington trains came into the city over the tracks of the Galena & Chicago Union Railroad from Geneva Junction.

In 1876 the Rock Island & Pacific Company, which had been operated up to that time under varied fortunes, adopted the title of the St. Louis, Rock Island & Chicago Railroad Company, and the same year the line was purchased by the Chicago, Burlington & Quincy Railroad Company.

The history of the Chicago, Rock Island & Pacific Railroad is only a repetition of consolidations of smaller roads, until in 1854 the road was opened to the Mississippi and the nucleus of that magnificent system was firmly established. In the Fall of 1855 this company, with the Michigan Southern Railway Company, built their depot on Van Buren street, between

Clark and Sherman streets. This building involved an expenditure of about \$60,000, and gave the young city another substantial token of her enterprise and prospects.

In 1862 the consolidation of a number of smaller roads formed the corporation now known as the Chicago & Alton Railroad.

The first eastern trunk line introduced here was the Michigan Southern, which was completed to Chicago in February, 1852.

The history of the road which is the early history of the corporation now known as the Lake Shore & Michigan Southern Railway Company embraces the records of the Erie & Kalamazoo, Michigan Southern & Northern Indiana and Michigan Southern, Atlantic & Pacific.

The Michigan Central Railroad may be said to have its origin in the Detroit & St. Joseph Railroad Company, which was chartered in 1831, but not built or successfully operated until about 1852. The first depot of this road in Chicago was built on the lake shore south of Twelfth street, and was used until 1856, when the Illinois Central built their new depot at the foot of Lake street, and by contract permitted the Michigan Central trains to run into it.

The Chicago & Western Indiana Railroad was organized on June 6, 1879. The articles of incorporation declared the object of the corporation to be the construction of a road from the Indiana State line into the city of Chicago at Van Buren street.

On April 20, 1880, the South Chicago & Western Indiana Railroad was organized, and on April 22d of the following year, the Chicago & Western Indiana Railroad Company was organized, with the avowed purpose of constructing a railroad between the towns of Hyde Park and Lake View. It was built for the purpose of making a connecting line between the several railroads in Cook County with a view to the transaction of a general transfer business.

On January 26, 1882, the three companies above named were consolidated under the name of the Chicago & Western Indiana Railroad Company, which is principally operated for the purpose of furnishing terminal facilities for several eastern trunk lines.

The Milwaukee and St. Paul Railway came into existence in 1873, when the connecting line of this road was constructed between Chicago and Milwaukee. The policy of the management was one of extension, and the usual purchase and consolidation of smaller roads, until in 1884 the company owned and operated 4,520 miles of completed railway.

The Baltimore & Ohio Railroad Company secured an entrance into Chicago over the Illinois Central tracks in 1874, and occupied that company's depot until 1875, when the city terminus was fixed at the Exposition building on Michigan avenue, where it yet remains.

The Chicago & Grand Trunk Railway is the consolidation of several independent companies, controlling and operating a line between this city and Port Huron.

The New York, Chicago & St. Louis Railway Company was the result of the consolidation in 1881 of the following named roads: The Buffalo, Cleveland & Chicago Railroad Company, of New York; the Buffalo & Chicago Railway Company, of Pennsylvania; the New York & Chicago Railway Company, of Indiana, incorporated respectively at or about the same time in the various States named. This road is known as the "Nickel Plate."

The Chicago & Eastern Illinois Railroad is the successor of the Chicago, Danville & Vincennes, which was chartered in the Winter of 1865-6, and just opened for travel as far north as this city on January 1, 1870, and having its general offices in Chicago. This road, like others, was evolved on the purchase and consolidation plan.

The Louisville, New Albany & Chicago Railway Company is the successor to the New Albany & Salem Railway Company, which was organized under a law of the State of Indiana authorizing private companies to complete any of the unfinished works of the State. On February 11, 1848, the State by enactment relinquished its rights to improvements already made, and authorized the company to extend the road, which was completed from New Albany to Michigan City and opened up for business July 4, 1852. It was not until October 4, 1859, that the name of this company was changed to the Louisville, New Albany & Chicago Railroad Company. In reaching this city the company is obliged to use portions of the tracks of the Chicago & Atlantic road and the Western Indiana.

This paper is not intended to be an exhaustive history of the gigantic railroad system as now existing in the Western States tributary to Chicago, but merely a brief history of the difficulties which beset the "old settlers" in their efforts to establish a nucleus for one of the greatest railroad systems in the world.

REAL ESTATE.

The two years preceding the panic of 1837 were noted for the widespread fever, which attacked the coolest blood, to speculate in real estate. The rise in values were tremendous. Fortunes were made almost in a day, and when the reaction came they were lost even more suddenly. It would be impossible to give anything like a clear picture of this portion of the city's history, since all was confusion and excitement. The most that can be done is to jot down items as they have been gathered from the files of the *American*, and other sources, showing the business transacted at the Land Office, and in some cases, the comparison of prices of lots before the excitement, when the fever was at its height, and after the reaction had set in. The general reader can easily draw his conclusions from the details here presented :

In 1830, Jedediah Woolsey, Jr., bought of the Canal Commissioners, lot 9, block 44, for fifty dollars. Alexander Wolcott purchased eight lots in block 1, during the same year, paying \$692 ; also the east one-half, northeast quarter section 9, township 39, range 14 (eighty acres), at \$1.12½ per acre. John S. Wilburn bought lot 1, block 1, in 1830, for sixty dollars. John S. C. Hogan paid for lots 1, 2, 5 and 6 \$116, and in 1836 bought lot 7, paying \$12,000 for it with the greatest alacrity.

The above are specimens of some of the earliest purchases. In May, 1835, the land office was opened. To the close of the sale the receipts amounted to \$386,500, of which about \$353,500 were for lands sold at auction, and the balance under the pre-emption law. During the next month, E. K. Hubbard and W. L. Newberry advertised sales of valuable lots, the former having three hundred and fifty to dispose of. In October, A. Garrett announces in the *American*, that from January 4th to the 27th of that month he has sold \$1,800,000 worth of real and personal property. He had fitted up a large room on Dearborn street, and had an "auction room equal to any in New York or Philadelphia."

In November the rate of assessment for the coming year was fixed by the town at one-half of one per cent.

A lot fronting eighty feet on the water by one hundred and fifty feet on Dearborn, purchased for \$9,000 in the Spring of 1835, brought \$25,000 in the succeeding Winter. Says the *American*, in April, 1836 : "There is a piece of land in Chicago, costing sixty-two dollars in 1830, which has risen

in value one hundred per cent per day ; it sold last week for \$96,700, one-quarter down, and the remainder in six, twelve and eighteen months, at ten per cent." Charles Butler, of New York, states in a later issue, that "in 1833 one-quarter of Kinzie's addition was offered for \$5,500—worth then \$100,000. In 1833 forty acres of land worth \$400 could not be purchased in 1836 for less than \$200,000. In 1834, the 'Hunter property' was purchased for \$20,000. In the Spring of 1835 it was resold for \$100,000. It is now (September, 1836), worth \$500,000."

Notwithstanding this tremendous rise in values of real estate, in pursuance of a notice issued by N. H. Bolles, Town Collector, that all property would be sold upon which the corporation tax of 1835 remained unpaid, September 10, 1836, a great number of lots were advertised. Of those which appear in the *American* of October 1st, one hundred and fifty-five were taxed less than \$1.00 ; forty-two from \$1.00 to \$5.00 ; ten from \$5.00 to \$10.00 ; twenty-two between \$10.00 and \$25.00, and one at \$39.00. In Wolcott's addition one was taxed \$10.50 ; three between \$7.50 and \$10.00 ; the remainder less than \$7.00. In the North Branch addition no tax reached \$1.00. In Wabansia addition three lots which were advertised were assessed \$2.50, \$3.50, \$7.50. In the "original town," one for \$50.50 ; two for \$30.00 each ; one for 19.00 ; seventeen for \$10.00, and eighteen less than \$10.00.

The reaction from the inflation of 1835-36 was setting in. In January, 1837, the town passed an ordinance relating to the sale of lots for taxes. It provided that the assessment on all taxable lots should be made annually, and the roll returned to the Board previous to October 1. The Town Collector was to notify the public by the fifteenth of that month that he would advertise all lots for sale upon which the tax remained unpaid on February 1st. If not redeemed, the purchaser at the sale was entitled to the deed. In March, 1837, another lot of "delinquents" appeared to have forgotten the value of Chicago real estate. In the "old town" most of the lots advertised for sale were taxed at \$2.50 apiece—the highest, \$45.00. The highest tax upon a water lot in Kinzie's addition was \$20.00 ; a dry lot, \$47.50. The majority of lots in Wolcott's addition were assessed at \$2.50 ; the highest one at \$10.00. In Wabansia addition the highest was \$5.00 ; the majority at \$1.25. In School Section 21 the highest was \$21.00 ; the majority at \$1.00. In North Branch addition, out of three hundred and eight lots advertised for sale, the tax of twenty-four only reached \$1.25, most of them being assessed at thirty-seven cents per lot. The taxes collected during the year ending May 1, 1837, amounted to \$11,659.54, of which \$2,661.26 was the balance assessed during 1835, and \$8,998.27 the corporation taxes assessed on real estate for 1836.

The panic of 1837 brought great distress to this community, and delayed the growth of Chicago as a city. Its reaction here was principally felt

in real estate circles, it being almost impossible to dispose of land at any price during 1838. The canal improvement was really about all that sustained and encouraged Chicago for nearly ten years. Many people left the city in 1840. Although the hard times of 1837 and 1838 affected the sales at the land office as a "business institution," it was as persistently prosperous as any that can be named from May 28, 1835, when it opened, to May 1, 1846, when it closed. Witness the figures :

| | | | | | | | |
|-----------------|---|---|---|---|---|---|---------------------|
| 1835, | . | . | . | . | . | . | 370,043.38 acres. |
| 1836, | . | . | . | . | . | . | 202,315.96 acres. |
| 1837, | . | . | . | . | . | . | 15,697.87 acres. |
| 1838, | . | . | . | . | . | . | 87,891.43 acres. |
| 1839, | . | . | . | . | . | . | 160,635.70 acres. |
| 1840, | . | . | . | . | . | . | 142,150.00 acres. |
| 1841, | . | . | . | . | . | . | 138,583.16 acres. |
| 1842, | . | . | . | . | . | . | 194,556.11 acres. |
| 1843, | . | . | . | . | . | . | 229,459.70 acres. |
| 1844, | . | . | . | . | . | . | 230,769.63 acres. |
| 1845, | . | . | . | . | . | . | 220,525.08 acres. |
| To May 1, 1846, | . | . | . | . | . | . | 61,956.11 acres. |
| Total, | . | . | . | . | . | . | 2,054,592.16 acres. |

The growth of Chicago from 1842 to 1850 was slow.

In April, 1852, the city negotiated its first great loan, \$250,000, payable in twenty years, through Duncan, Sherman & Co., of New York City. This was on account of the inauguration of the new system of water works.

The growth of the city from 1850 to 1855 was marvelous, and the confession is said to have been made by certain real estate men that though they did their best at representing the rise in land, the facts outstripped their stories. It was during this period that Chicago inaugurated her grand system of water works and drainage. Then, unfortunately, she experienced her great set-back, the panic of 1857. The city was so embarrassed that in September the Council ordered the issuing of \$100,000 bonds. It was done, and Comptroller Hayes went to New York to negotiate them. After using his powers of persuasion for a week, he returned, entirely unsuccessful in his mission.

In the Winter of 1857 a large number of laboring men was out of employment, and the city authorities were called upon, in the midst of the most distressing times, to inaugurate public improvements and thus assist them financially. Special committees of the Common Council were appointed, who found it impossible to appropriate money from the city treasury for charitable objects without express permission from the Legislature, and especially when the whole available means of the city were required to pay

her current expenses and honorably meet her maturing indebtedness. Furthermore, the city could not, as suggested, make advances through her crédit to carry on public improvements then pending, for which assessments had not been collected, because all taxes had been collected to their full extent, and were paid in so slowly that the Comptroller found it difficult to provide for the most necessary expenses. In the then state of the money market it was impossible to raise money by a loan. The filling of Washington Park, however, had been contracted for and provided employment for a great number. Most of the improvements which were ordered at that time were made upon remote streets, and the assessments upon adjoining property fell upon the poorer people. All that could be done, therefore, was for the city to hasten the construction of works for which orders had been passed and warrants issued.

WORLD'S COLUMBIAN EXPOSITION.

Through the courtesy of the Hon. Moses P. Handy, Chief of the Department of Publicity and Promotion of the World's Columbian Exposition, this department is placed in possession of interesting matter connected with the plans and preparations for celebrating the great event. His published pamphlet of information, in addition to presenting the proclamation of the President of the United States, contains the following :

"Two years ago the United States, as a representative nation of the New World, began to consider the propriety of celebrating the four hundredth anniversary of the discovery of America, by inviting the nations of the Old World to visit her shores. The closing decade of the most remarkable century in the Christian era, coinciding with the anniversary of an event unequaled in the history of this sphere, suggests the uniting of all mankind in a celebration of peace. The land where necessity and courage has fostered industry and wealth, presents a fitting scene for such a gathering. Columbia, the youngest among the continents of the civilized world, should act the part of hostess at the celebration of her four hundredth birthday, by extending the material evidences of the progress of the human family. And such a commemoration should be called the World's Columbian Exposition.

"The unanimous and enthusiastic endorsement of the citizens and press of the United States of an undertaking so grand, prompted the United States Government to legalize the holding of the World's Fair in celebrating the four hundredth anniversary of the discovery of America by Columbus ; and on April 25, 1890, President Harrison approved the Act of Congress, which is as follows :

" 'Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, that an exposition of arts, industries, manufactures and products of the soil, mine and sea, shall be inaugurated in the year Eighteen Hundred and Ninety-two, in the city of Chicago, in the State of Illinois, as hereafter provided.'

"The Act provides for a national supervisory body, known as the World's Columbian Commission, to be appointed by the President, composed of two Commissioners and two alternates from each State and Territory and the District of Columbia, and eight Commissioners and eight alternates at large, the Commissioners and alternates from the States and Territories to be appointed upon nomination by their respective Governors.

"ORGANIZATION.

"Immediately upon the passage of the Act the work of organizing and preparation was commenced, and resulted in the election of officers of the World's Columbian Commission, as follows : President, Thomas W. Palmer, of Michigan ; First Vice-President, Thomas M. Waller, of Connecticut ; Director-General of World's Columbian Exposition, George R. Davis, of Illinois.

"WORLD'S COLUMBIAN EXPOSITION ASSOCIATION OF CHICAGO.

"Officers: President, Lyman J. Gage; First Vice-President, Thomas B. Bryan; Second Vice-President, Potter Palmer; Secretary, Benjamin Butterworth; Assistant Secretary, I. H. Kingwill; Treasurer, Anthony F. Seeberger; Auditor, William K. Ackerman.

"EXECUTIVE COMMITTEE.

"Lyman J. Gage, President; Thomas B. Bryan, First Vice-President; Potter Palmer, Second Vice-President; Ferd. W. Peck, DeWitt C. Cregier, Edwin Walker, Erskine M. Phelps, William T. Baker, Rollin A. Keyes, Marshall M. Kirkman, Charles L. Hutchinson, Otto Young and Robert C. Clowrey.

"WORLD'S, CONGRESS AUXILIARY.

"The World's Congress Auxiliary, as suggested by a letter of the Secretary of State, is an authorized adjunct of the World's Fair, and aims to supplement the Exposition which will mark the material progress of the world by a portrayal of the wonderful achievements of the present age in science, literature, education, government, jurisprudence, morals, charity, religion and other departments of human activity, and as the most effective means of increasing the fraternity, progress, prosperity and peace of mankind. Virtually it will be a series of Congresses, at which the greatest thinkers of the world will discuss, among other themes, the following:

"1. The grounds of fraternal union in the language, literature, domestic life, religion, science, art and civil institutions of different peoples.

"2. The economic, industrial and financial problems of the age.

"3. Educational systems, their advantages and their defects, and the means by which they may best be adapted to the recent enormous increase in all departments of knowledge.

"4. The practicability of a common language, for use in the commercial relations of the civilized world.

"5. International copyright and the laws of intellectual property and commerce.

"6. Immigration and naturalization laws, and the proper international privileges of alien governments, and their subjects or citizens.

"7. The most efficient and advisable means of preventing or decreasing pauperism, insanity and crime, and of increasing productive ability, prosperity and virtue throughout the world.

"8. International law as a bond of union and a means of mutual protection, and how it may best be enlarged, perfected and authoritatively expressed.

"9. The establishment of the principles of justice as the supreme law of international relations, and the general substitution of arbitration for war in the settlement of international controversies.

"PROCLAMATION BY THE PRESIDENT OF THE UNITED STATES OF AMERICA.

"Whereas, satisfactory proof has been presented to me that provision has been made for adequate grounds and buildings for the uses of the World's Columbian Exposition, and that a sum not less than \$10,000,000, to be used and expended for the purpose of said Exposition, has been provided in

accordance with the conditions and requirements of Section 10 of an Act entitled 'An Act to provide for celebrating the four hundredth anniversary of the discovery of America by Christopher Columbus, by holding an International Exhibition of arts, industries, manufactures and the products of the soil, mine and sea, in the city of Chicago, in the State of Illinois,' approved April 25, 1890.

"Now, therefore, I, Benjamin Harrison, President of the United States, by virtue of the authority vested in me by said Act, do hereby declare and proclaim that such International Exhibition will be opened on the first day of May, in the year 1893, in the city of Chicago, in the State of Illinois, and will not be closed before the last Thursday in October of the same year.

"And in the name of the Government and of the people of the United States, I do hereby invite all the nations of the earth to take part in the commemoration of an event that is pre-eminent in human history and of lasting interest to mankind by appointing representatives thereto, and sending such exhibits to the World's Columbian Exposition as will most fitly and fully illustrate their resources, their industries and their progress in civilization.

"In testimony whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

"Done at the City of Washington, this twenty-fourth day of December, in the year of our Lord One Thousand Eight Hundred and Ninety, and the independence of the United States the One Hundred and Fifteenth.

"By the President.

[Signed] BENJ. HARRISON.

"[Signed] JAMES G. BLAINE, Secretary of State."

The broad and patriotic spirit which prompts the gathering of the people of the nations to unite with the citizens of the United States in celebrating the four hundredth anniversary of the discovery of America, in this city in the year 1893, displays a progress in the development of a universal civilization and a recognition of the equal rights of the whole human family. In our midst will mingle the great of all lands—the statesman, the scholar and citizen representing every grade of government, civilization and culture, all standing side by side upon the sacred soil of the great Republic.

The magnitude and importance of this great event of the century can not be estimated or measured upon the basis of a circumscribed boundary of a city, State or nation, but must encompass the land and water of continents, and dispense its benefits, its privileges and blessings to all mankind.

The products of all climes, from sea and land, from the barbarous tribes to the civilized nations of the earth, representing antiquity, progress, civilization and culture; with the works of the arts and sciences, the wonderful achievements of inventive minds and the high attainments reached in the products of skilled labor, the exhibit of the treasures and resources from the inexhaustible storehouses of nature, will contribute to the bewildering and amazing achievements and possibilities of mankind.

The millions of money to be expended, and the mental and physical forces requisite to perfect preparations for receiving the world's inhabitants

with their products are of gigantic proportions, and can only bring compensation by a universal dissemination of a higher civilization, the elevation and well-being of mankind, a recognition of the dignity of skilled and honorable labor, the establishment of broader principles of fraternal intercourse and a closer brotherhood of nations.

“THE SITE OF THE EXPOSITION

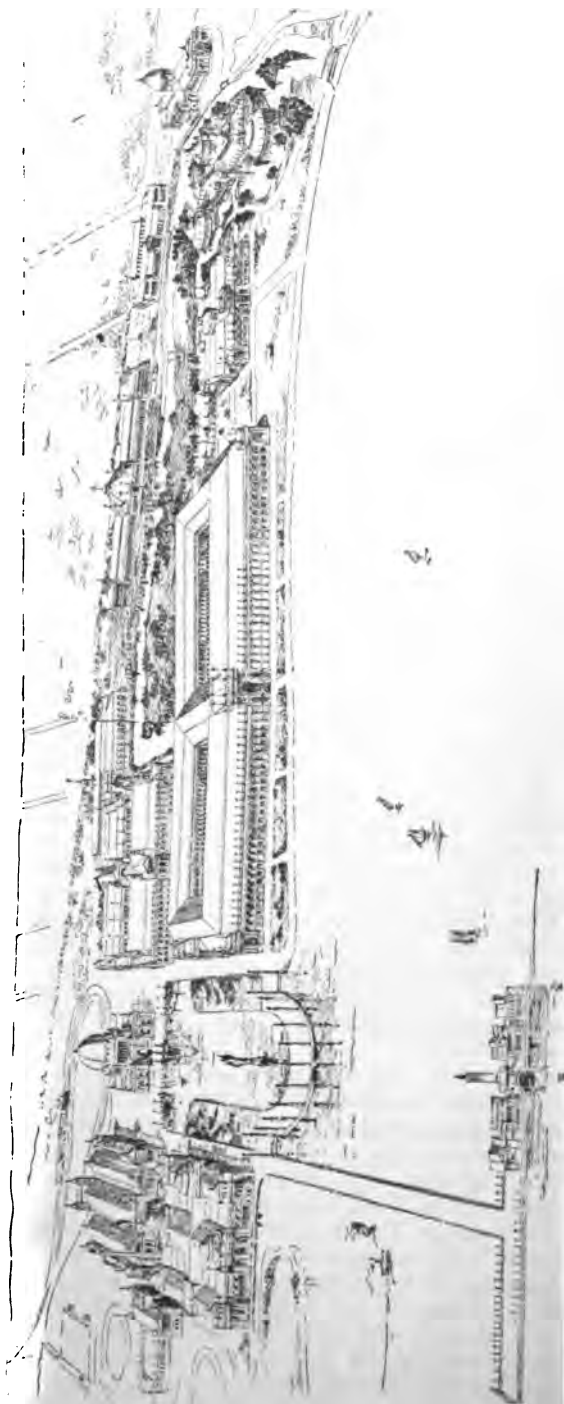
is located at Jackson and Washington Parks, and is beautifully situated on the shore of Lake Michigan, seven miles south of the business center of the city, the grounds embracing a total of 1,037 acres and available for exposition purposes. On these parks, previous to their selection for the Exposition, \$4,000,000 was expended in laying out and beautifying the grounds, and an additional \$1,000,000 will be expended in further ornamentation of this already attractive location. These parks form a part of a general park and boulevard system extending more than thirty-five miles around the city, and passing through eight large and elegantly improved parks, the driveways being from one hundred to three hundred feet in width, and ornamented with trees, shrubbery and walks.

“Jackson Park, upon which will be located the principal buildings of the Exposition, has a frontage of two miles on the shore of Lake Michigan, and will be so improved and ornamented as to contribute to the pleasure and comfort of visitors. The accompanying map furnishes information as to the location and size of the various buildings to be erected, the construction of pier and steamboat landing, the lagoon and other ornamentation.

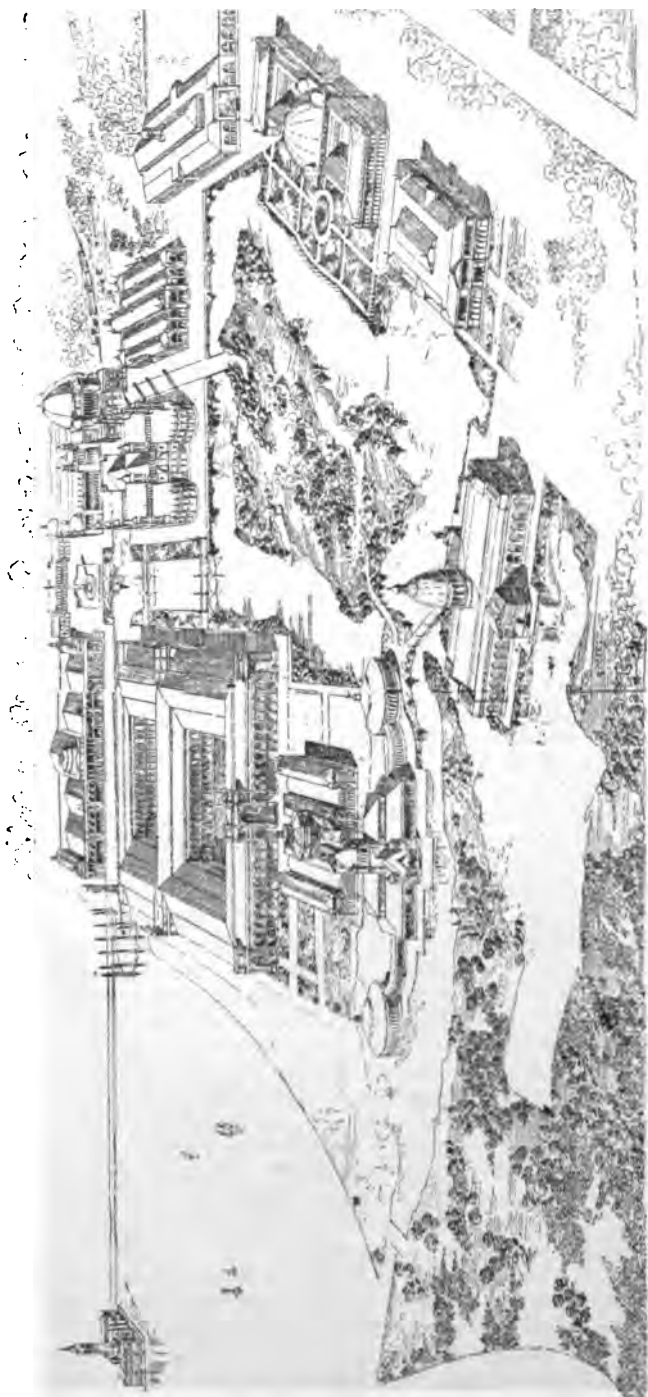
“It is impossible to state yet what the total number of buildings will be, but it is estimated that not less than one hundred and twenty-five acres will be occupied and placed under roof. These buildings will surpass those of any previous World's Fair in numbers, size and splendor. They will have a total frontage of more than two miles, and be in the main sixty feet high, with numerous domes, towers and turrets for architectural effects.

“The total amount required by the Construction department for the construction of buildings and other improvements is estimated at about \$12,000,000. This does not include the cost of the State, foreign or private buildings. An estimate of the grand total of all appropriations, made and expected, by the United States, the Exposition Company, the States and Territories, corporate bodies, trades associations, manufacturers and foreign nations, reaches a total of \$32,000,000, with a prospect that the amount will exceed that sum.

“The enormous sum thus expended must necessarily result in developing everything great and beautiful in art, architecture and floral and landscape decorations in the preparations for so great an event. Among the most interesting and delightful views which will greet the visitor in reaching the Exposition grounds by steamer, a distance of six miles from the embarking point at the Lake Front Park, there will be constantly in view the towers and gilded domes of the Fair buildings, and when abreast of the site a grand spectacle of surpassing magnificence will be presented—the vast extent of the beautiful park, the windings of the lagoon, the superb array of scores of great buildings, elegant and imposing in their architecture and gay with myriads of flags and streamers floating from their pinnacles and towers, and, overlooking all, the lofty Proctor tower. In the northern portion of the grounds will be seen a picturesque group of buildings constituting



THE WORLD'S COLUMBIAN EXPOSITION. .
BIRDSEYE VIEW FROM THE LAKE.



THE WORLD'S COLUMBIAN EXPOSITION.

BIRDSEYE VIEW FROM THE NORTH.

a veritable village of palaces. Here, on a hundred acres or more, beautifully laid out, will stand the buildings of foreign nations and of a number of the States of the Union, surrounded by lawns, walks and beds of flowers and shrubbery; these will vary greatly in size and style of architecture and will be located on wide curving avenues, and will include some of the most ornate, costly and palatial structures of the Exposition.

"In the western part of the group will stand the Illinois building, 400x150 feet in size, and costing \$350,000. It will be severely classic in style, with a dome in the center and a great porch facing southward. In this portion of the park, too, will stand the Fine Arts building, which is to be a magnificent palace costing half a million. Just south of the foreign and State buildings may be observed a considerable expanse of the lagoon, with inlet to the lake, and encompassing three islands. On the largest one will stand the United States Fisheries building, 700 feet in length and flanked at each end with a curved arcade connecting it with two round pavilions in which will be aquaria and the tackle exhibit. This building will be in the Spanish style and conspicuous because of the liberal use of color.

"A little farther south, across an area of the lagoon, will be the United States Government building, measuring 350x420 feet and having a dome 150 feet high and 120 feet in diameter. It will be constructed of stone, iron and glass, classic in style, cover four acres and cost \$400,000. In it will be a very complete exhibit from the several federal departments, etc.—War, Treasury, Agriculture, Interior, Post Office, Navy, Smithsonian Institution and National Museum. On the lake shore east of its building and in part in the intervening space, the Government will have a gun battery, life-saving station complete with apparatus, a light-house, war balloons, and a full size model of a \$3,000,000 battle-ship of the first class. This will be constructed on piling alongside a pier, being thus surrounded by water and apparently moored at a wharf. The ship will be 348 feet long, sixty-nine feet wide amidships, and will have all the fittings and apparatus that belong to the most approved war vessels, such as guns, turrets, torpedo tubes, torpedo nets and booms, boats, anchors, military masts, etc., and a full complement of seamen and marines detailed from the Navy department. The visitor arriving by steamboat will pass very near and obtain an excellent view of the shore portion of the Government exhibit. He will probably see also, anchored near by, a Columbus fleet, a reproduction, as near as may be, of the one with which the great discoverer sailed from Palos, and also a Government revenue cutter and one or two torpedo boats.

"Steaming by the Government exhibits the visitor will come abreast the largest building of the Exposition—that of Manufactures and Liberal Arts. It will measure 1700x800 feet, with two interior courts, and at its center a great dome 350 feet in diameter. Surrounding it on all sides will be a porch two stories in height, affording a delightful promenade and a view of the other buildings, of the lagoon, alive with row boats, gondolas, and pleasure craft propelled by electricity, and of the grounds generally. This building will be of French renaissance.

"Two parallel piers will extend from the shore about 400 feet where, taking out-curves, they will partially enclose a circular harbor, from the center of which will rise, on a great pedestal, a commanding statue of Columbus, or of the Republic. On the embracing portions of the pier will stand forty-four exquisite, isolated columns, representing the forty-four States, each one bearing over its capital the coat-of-arms of the State it symbolizes. Beyond

the harbor the north or main pier will extend out into the lake to a total distance of 1,500 feet, taking there a deflection several hundred feet to the southward, and having at its extremity, rising from the water on a stone foundation, an immense Greek pavilion 200 feet in diameter, gaily colored and adorned. Here visitors may sit and enjoy the cooling lake breezes, listen to the finest music, and obtain a magnificent view of the great Exposition buildings and other shore attractions.

"Upon reaching the pier the visitor will look upon an avenue or court several hundred feet wide, extending westward across the park, presenting a spectacle of marvelous architectural grace and beauty. To the right, at the entrance of this grand avenue, will be the great Manufactures building, and farther back the other attractions already referred to. To the left will be the Agricultural building, measuring 800x500 feet. It will be severely rectangular in form, but made elaborately ornate with statues and other relief work. Its cost will be a half million dollars. Between this and the huge Manufactures building juts a branch of the lagoon. All down this grand avenue, encompassing a beautiful sheet of water, will stand imposing buildings, along the majestic facades of which will sweep the gaze of the visitor until it rests upon the Administration building of the Exposition, which terminates the vista nearly a mile distant. Upon traversing this 'Long Walk,' as it may be called, after the famous way from Windsor Castle to Ascot, the visitor will find it a veritable Bois de Boulogne or Versailles in point of beauty of effects produced by landscape, architecture and gardening.

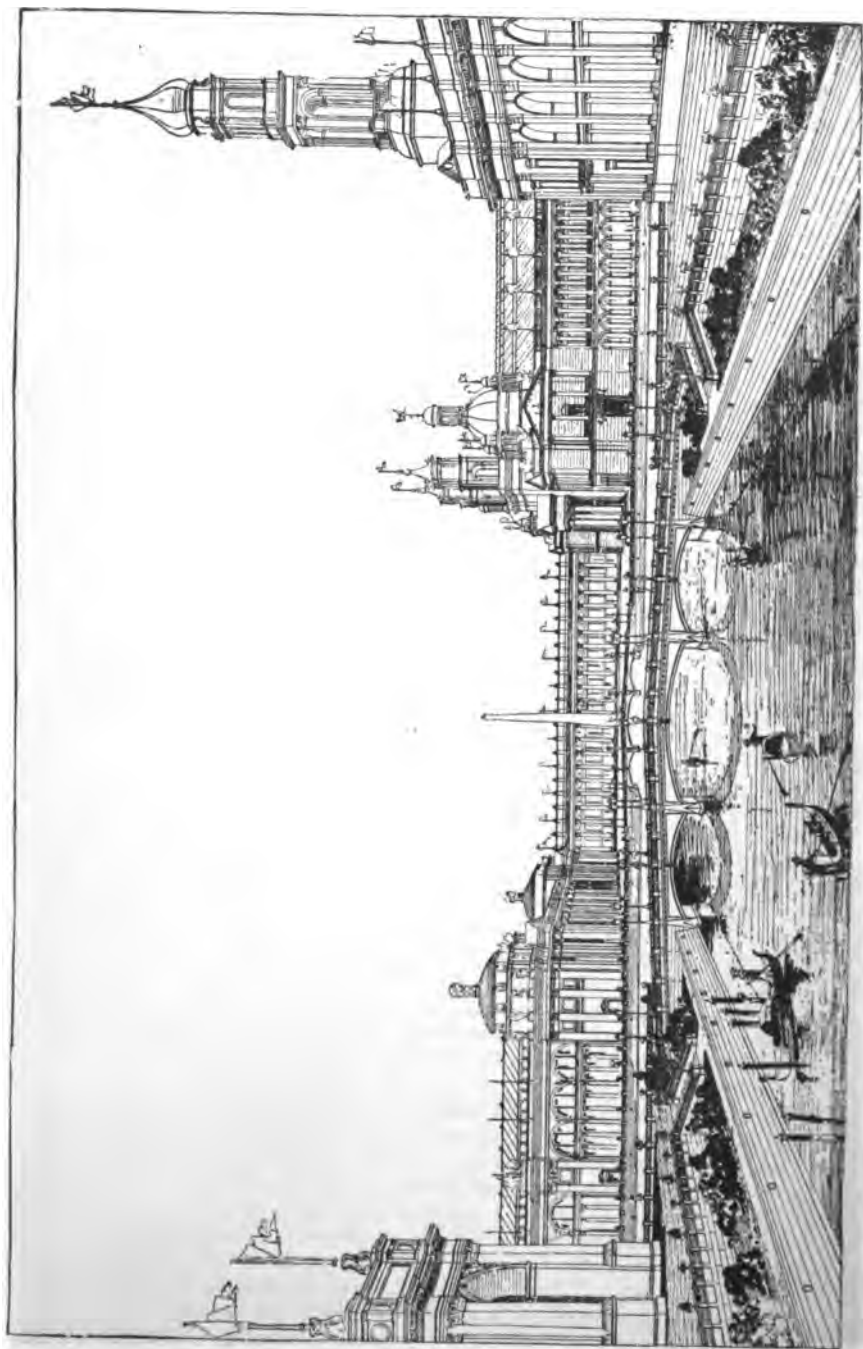
"Passing the Agricultural building the visitor will come to the great Machinery Hall, which lies to the westward of it and which is connected with it by a horseshoe arcade, doubling a branch of the lagoon. It will be nearly identical with it in size and cost, but will differ from it considerably in appearance, being serious, impressive and rich in architectural line and detail.

"THE ADMINISTRATION BUILDING.

"Opposite Machinery Hall, and north of it in the center of the 'Long Walk,' will stand the Exposition Administration building. This will be one of the most imposing, and in proportion to its size the most expensive one, of the large structures. Richard M. Hunt, of New York, President of the American Institute of Architects, is its designer, and he has made it stately and simple, yet exceeding striking in appearance, and an excellent representative of Italian renaissance. It will cost \$650,000, be adorned with scores of statuary figures, and be surmounted by a gilded dome rising 250 feet. In it will be the offices of the National Commission and Local Directory, and the headquarters of all the numerous officials connected with the management and regulation of the Exposition.

"To the northward of the Administration building, on either side, and facing the grand avenue, will be two more immense buildings, one for the electrical and the other for the mining exhibit. These will be about equal in size, covering each a little more than five acres and a half. Both will be of French renaissance.

"North of these buildings, in the main lagoon, will be an island of twenty or thirty acres in area. It is the intention to have this kept as wild and primitive as possible. There the visitor may wander through a miniature 'forest primeval,' pathless and untransformed by art, and may hunt the fragrant wild flower or the saucy chipmunk, and generally commune with nature in its native haunts.



THE WORLD'S COLUMBIAN EXPOSITION.
VIEW OF THE LAGOON FROM THE NORTH.



THE WORLD'S COLUMBIAN EXPOSITION.
MECHANICAL BUILDING.

"Proceeding from the Administration building still farther westward, or, more accurately, southwestward, the observer will arrive at the railway facilities for the arrival and departure of visitors. Six parallel tracks will sweep into the grounds in a huge circle at the extreme southwest portion, entering and leaving at nearly the same point. Around this loop, the trains in arriving and departing, will sweep at intervals of a few minutes, and the depot accommodations will be so extensive and well arranged that it is believed that there will be almost no confusion or crowding.

"Within this loop made by the railway tracks will be the Machinery annex, a huge building covering several acres and containing the overflow exhibits from Machinery hall with which it will be connected with subways. Within the loop, also, will be the main power house, from which power will be furnished to such buildings on the ground as require it.

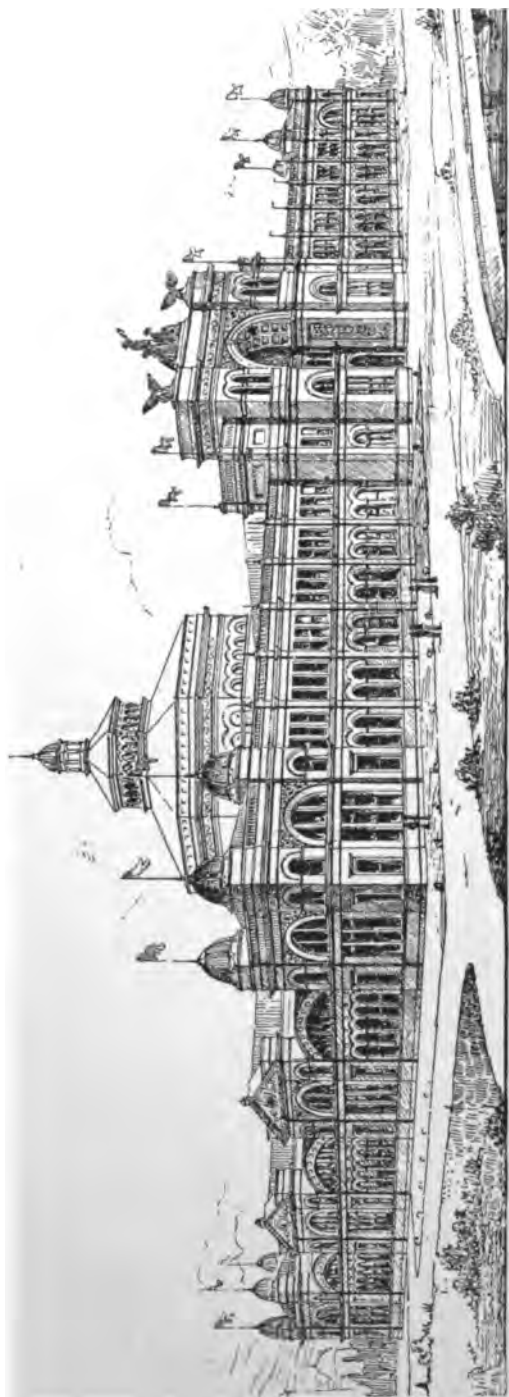
"To the southward of the line of buildings which are ranged along the south side of the grand avenue, is a vast open expanse which will be devoted to the live stock exhibit. Here immense stock buildings, a show ring, and whatever else will contribute to the success of the live stock feature of the Exposition will be constructed.

"Jackson Park resembles a right-angled triangle in shape. The visitor has thus far, in his tour of inspection, traversed the lake shore or hypotenuse of the triangle, and across the southern end of the base. It remains only to turn towards the north and note the structures ranged along the perpendicular. The first one arrived at is the Transportation building. This will be Romanesque in style and one of the largest of all, measuring 1020x280 feet, exclusive of a great annex in the rear. The Transportation building, together with the depots, will cost \$1,000,000. North of this will be the Horticultural building, another immense structure, 1000x150 feet, with three domes—one at each end and a larger one at the center. This will be constructed chiefly of glass and iron, and will cost \$250,000.

"Still farther north and directly opposite the park entrance of Midway Plaisance, will stand the Women's building, which it is expected will be one of the chief objects of interest on the grounds. It is to be 400x200 feet in dimensions, two stories, and will cost \$200,000. The exterior design will be furnished by a woman architect. Here the Lady Managers will have their headquarters, and here will be collected, doubtless, a wonderful exhibit illustrating the progress and attainments of women in the various branches of industry.

"Passing the Women's building the visitor can turn towards the north-east and inspect the foreign and State buildings in the northern portions of the park, of which he is supposed to have caught a general view from the steamboat deck; or, he can turn sharply to the west, into Midway Plaisance, and ascend the Proctor tower. This will be constructed of steel, and be 1,050 feet high, or about 100 feet higher than the Eiffel. From its top the view obtainable of the Exposition grounds and buildings and of the great city lying to the northward, will be magnificent beyond all description.

"West of the tower, along the Plaisance and overflowing into Washington Park, will be a large and curious aggregation of structures, including probably some of the foreign and State buildings, and many of semi-private construction, and of a nature which cannot yet be described. Almost innumerable structures and exhibits, such as reproductions of famous buildings, etc., most of them novel and striking in character, have been proposed, and it is not yet possible to tell how many or which of them will be erected.



THE WORLD'S COLUMBIAN EXPOSITION.
UNITED STATES BUILDING.

That there will be an astonishing array of them there can be no doubt, and unquestionably some of them will be important and exceedingly interesting features of the great Fair.

"All of the important buildings will stand on terraces four feet above the general park level, thus greatly improving the general landscape effect and rendering their own appearance more imposing. From scores of domes and towers and minarets, flags and streamers will be floating, and both the exterior and interior of the building will be 'warm' with a liberal display of color. The beautiful park, with its magnificent array of architecture, will surely present one of the finest spectacles the eyes of man ever beheld.

"TRANSPORTATION.

"The facilities for reaching the Exposition from all parts of the city will be greatly increased by the time the opening occurs. They will include steam, electric and horse railways, cable cars, elevated roads and an extensive carriage and cab service, steamboats on the lake, and, perhaps, other means. An enormous attendance is anticipated, and it is the intention to provide not only ample transportation facilities, but every accommodation on the grounds for the convenience and comfort of visitors, no matter how numerous they may be. Police regulations will be as perfect as can be made.

"DEDICATION.

"The Exposition building, as provided in the Act of Congress, will be dedicated on October 12, 1892, the four hundredth anniversary of the landing of Columbus, with appropriate and impressive ceremonies, for which extensive preparations are being made. The Exposition will be formally opened to the public on May 1, 1893, the intervening time being reserved for the reception and placing of exhibits. The Exposition will close on October 26, 1893."

